

**THE IMPACT OF CRITICAL THINKING ON ACADEMIC PERFORMANCE
OF LEARNERS IN EASTERN DIVISION SCHOOLS
IN TORORO MUNICIPALITY**

BY

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**A RESEARCH REPORT SUBMITTED TO THE BOARD OF EXAMINERS OF THE
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DECLARATON

I, Wagabo Juliet (Reg. No. BU/UP/2022/0315), hereby declare that the research report titled "The impact of Critical Thinking Skills on Academic Performance of Learners in Eastern Division Primary Schools in Tororo Municipal Council" has been prepared with honesty, integrity, and professionalism.

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6th / August 2024

(ii)

(i)

APPROVAL

This is to certify that this Research report of **Wagabo Juliet** (Reg. No. BU/UP/2022/0315), titled “The impact of Critical Thinking Skills on Academic Performance of Learners in Eastern Division Primary Schools in Tororo Municipal Council” has been under my supervision. It is now ready to be submitted to the Board of Examiners with my due approval.

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DEDICATION

This research is dedicated to my beloved parents Naloda Absolom and Kaanyi Christine, my husband Kiriana Kamilusi and my children Awori Buladina Gracious, Apio Angella and Katono Esther whose unwavering love and support have been cornerstone of my journey. Your encouragement has instilled in me the courage to pursue my dreams and the determination to overcome challenges.

To my teachers and mentors, who have guided me with wisdom and patience, thank you for nurturing my curiosity and inspiring me to think critically? Your influence has helped in shaping my academic path.

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Lastly, I am grateful for the opportunity to engage in this research as it has deepened my knowledge and passion for education. I hope that this study contributes to the understanding and promotion of critical thinking skills in primary education, ultimately benefiting learners and educators alike.

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ABSTRACT

This research investigated the relationship between critical thinking skills specifically logical analysis, problem solving strategies and inferential reasoning and academic performance among learners in the Eastern Division of Tororo Municipal Council.

Mixed research approaches that included qualitative and quantitative approach were employed, targeting a sample of 100 respondents from various schools. Data was collected using structured interview guide for pupils and structured questionnaires for teachers and Headteachers. The results indicated significant correlations between critical thinking skills and academic performance, suggesting that enhancing these skills could lead to improved educational outcomes.

CHAPTER ONE: INTRODUCTION

1.0 Introduction

This chapter dealt with desired background to the problem under study. The researcher looked at the elements of dependent and independent variables. Some international, regional and local perspectives were stated as well as the empirical studies.

1.1 Background of the study:

Critical thinking skills had been recognized as essential for academic success and lifelong learning, with numerous studies highlighting their impact on learner performance. Therefore in a rapidly changing world driven by advancement in technology and globalization, the demand for critical thinking skills was becoming increasingly vital for individuals. Understanding how critical thinking skills impact academic performance is imperative for the holistic development of learners and their future success. For instance, a study by Moore and Searle (2018) in the United States found that students with strong critical thinking abilities tended to perform better in examinations and demonstrated higher levels of comprehensive and analytical skills compared to their peers. As a result, the impact of critical thinking skills on academic performance was a topic of significant interest and importance.

In the context of primary education in Eastern Division primary schools in Tororo Municipal Council, the significant of critical thinking skills in sharing learners' academic performance couldn't be overstated. Critical thinking is a cognitive process that enables individuals to analyse, infer and problem-solve. These skills are fundamental for learners to navigate complex academic tasks, engage critically with content and demonstrate a deep understanding of concepts across various subjects.

The academic performance of learners involved critical writing skills, participation in classroom activities and overall academic achievements. Each of these elements was intertwined with the development and application of critical thinking skills to empower learners to excel academically.

Numerous studies conducted globally had demonstrated the positive relationship between critical thinking skill and academic achievement in various education settings. In the global context still research by Facione and Facione (1994) emphasized the importance of critical thinking in higher education, demonstrating its correlation with academic achievement and problem solving abilities. A study also conducted by Johnson et al (2006) found that learners who demonstrated strong problem solving skills and analytical thinking achieved the higher grades in Mathematics and science subjects.

Similarly in Africa, where education systems were diversely structured and faced unique challenges, fostering critical thinking skills among learners was recognized as pivotal for enhancing quality education and producing well equipped individuals. For instance, studies such as those by Moyo and Mphale (2019) had underscored the significance of critical thinking skills in improving educational outcomes and preparing learners for the challenges of the 21st century.

In East Africa, the need to cultivate critical thinking skills had been acknowledged as a priority in educational reform efforts. For instance, the East African community's emphasis on competency based education and the development of critical thinking skills aligns with the region's commitment to enhancing the quality of education (East African Community 2017). Furthermore, in Uganda the Ministry of Education and Sports had recognized the importance of critical thinking in its national curriculum framework, reflecting a broader recognition of its role in shaping the educational landscape (Ministry of Education and Sports 2013). And this had been implemented by most authors when writing learner's textbooks by including learner based activities that stimulated critical thinking skills among them.

Tororo Municipal Council located in the Eastern Region of Uganda, faced its own set of challenges related to education. Despite efforts to improve educational standards, primary schools in Eastern Division in Tororo Municipal Council faced constraints in fully integrating critical thinking practices into their teaching methods and assessments. For example, a study conducted by Nsibirire and Ozano (2016) in Sub-Saharan Africa highlighted the need for explicit teaching approaches, that promoted critical thinking to overcome traditional rote-learning methods prevalent in some educational systems. This underscored the gap in

understanding how critical thinking skills were cultivated and evaluated in primary schools with the context of Tororo Municipal Council.

Still, the significance of critical thinking skills in primary education was underscored by local efforts to improve educational standards. For example initiative such as the Tororo district education strategic plan had highlighted the need to promote critical thinking and problem solving skills among learners as part of the broader goal of enhancing academic performance (Tororo District Local Government 2017).

This research was guided by Bloom's Taxonomy of learning domains proposed by educational psychologist Benjamin Bloom. This taxonomy categorizes educational objectives into cognitive domains emphasizing hierarchical nature of learning and development of higher order thinking skills. In the context of this study, Blooms taxonomy provided a theoretical foundation of understanding and assessing critical thinking skills in relation to academic performance.

At this point, the above examples illustrated the growing recognition of the impact of critical thinking skills on academic performance at various levels, from global perspectives to local education contexts especially to schools within Eastern Division in Tororo Municipal Council, this research aimed at contributing valuable insights to address the thinking capability of learners so as to enhance academic performance.

1.1. Statement of the problem

While it was generally acknowledged that a learning environment where learners were equipped with critical thinking abilities enabled them to analyze, infer and problem-solve. In this ideal setting, learners engaged deeply with content, demonstrated advanced cognitive skills, applied knowledge in real-world situation and excelled academically. However, the actual situation in many primary schools in Eastern Division revealed a gap between the desired state of critical thinking proficiency and the existing reality. This was noticed during the marking of end of term exams where learners failed most questions that required application of skills such as interpretation, problem solving and logical analysis in different subjects.

Learners often struggled to develop and apply critical thinking skills effectively leading to limited engagement with academic material, lower level of analytical reasoning and sub-optimal problem solving capabilities. This was evidenced in situations where some learners paid less attention to subjects that required critical thinking and did more of memorizing than understanding leading to low academic performance.

This discrepancy had profound consequences on learners' academic performance inhibiting their ability to comprehensively grasp concepts, articulate their thoughts coherently and excel in examinations and assessments. This could lead to challenges in further education opportunities, career options and ultimately effecting the socio-economic development of the community.

Despite efforts to enhance critical thinking skills through existing pedagogical approaches, interventions, professional development opportunities to teachers, and circular frameworks, the challenges persisted in Eastern Division primary schools in Tororo Municipal Council in translating the teaching of critical thinking into improved academic performance among learners.

Therefore, this study aimed at investigating the relationship between critical thinking skills and academic performance in order to provide valuable insights for educators, policy makers and relevant stakeholders in the educational sector.

1.3 Objectives of study

1.3.1. General objective

The general objective of the study was to assess the impact of critical thinking skills on academic performance among primary school learners in the Eastern Division of Tororo Municipal Council.

1.3.2. Specific Objectives

- i. To assess the relationship between learners' logical analysis of information and their academic performance in Eastern Division Primary Schools in Tororo Municipal Council.
- ii. To investigate the impact of learners' problem solving strategies on academic performance in Eastern Division Primary Schools in Tororo Municipal Council.

- iii. To assess how inferring of concepts impact on academic performance in Eastern Division Primary Schools in Tororo Municipal Council.

1.4. Research questions

The study was guided by the following questions:-

- i. To what extent does learners' analysis of information contribute to their academic performance in Eastern Division Primary Schools in Tororo Municipal Council?
- ii. How do learners' problem-solving strategies influence their academic performance in Eastern Division Primary Schools in Tororo Municipal Council?
- iii. How does inferring of concepts impact on academic performance in Eastern Division Primary Schools in Tororo Municipal Council?

1.5. Scope of the study

1.5.1 Content scope

The study focused on the impact of critical thinking skills on academic performance of learners in Eastern Division primary schools in Tororo Municipal Council. It specifically investigated the elements of critical thinking skills such as logical analysis of information, problem-solving strategies, inferring of concepts and their influence on academic performance of learners in Eastern Division Primary Schools in Tororo Municipal Council.

1.5.2 Geographical scope

This study focused on primary school learners in three selected schools of Eastern Division primary schools in Tororo Municipal Council. It focused on primary five to seven learners and only confined to the selected schools for accessibility and convenience in relation to the distance from the researcher's residence. The respondents were pupils, teachers and Headteachers.

1.5.3 Time scope

Data was collected in the period of May – Aug, 2024. This timeframe allowed for more thorough data collection encompassing learner's academic performance at specific points in the academic year, within the context of critical thinking skill assessments.

1.6. Significance of the study

It was hoped that the study would be of great significance to various stakeholders including learners, teachers, school administrators, policy makers and stakeholders.

This study intended to contribute valuable insights to educational landscape of Tororo Municipal Council. By comparing the relationship between critical thinking skills and academic performance, this research could inform educators, policy makers and stakeholders on the importance of fostering critical thinking abilities in primary school learners.

The findings of this study could lead to development of targeted interventions and strategies aimed at improving learning outcomes, learner engagement and overall educational quality in Eastern Division primary schools.

Ultimately, this research could contribute to the advancement of education in Tororo Municipal Council and empower learners with the necessary skills for success in the 21st century knowledge economy.

The outcomes of this research could serve as a basis for advocating the incorporation of critical thinking skills training in the academic curriculum of primary schools in Tororo Municipal Council, ultimately contributing towards the educational improvement of the region.

1.7. Justification of the study

The researcher intended to carry out this research because of very important reasons elaborated below;

- Understanding how critical thinking skills influence academic success could help educators tailor teaching methodologies and curriculum designs to enhance learner learning outcomes.
- By identifying factors that support the development of critical thinking abilities, this study could contribute to the overall improvement of educational practices in Tororo Municipal Council.
- The findings of this research could inform policy makers and stakeholders on the significance of fostering critical thinking skills in primary school learners to better prepare them for future challenges and opportunities in the evolving global landscape.
- The study could contribute to the existing literature on the importance of critical thinking skills in primary education, particularly in the context of Tororo Municipal Council.

- As critical thinking was crucial for academic success and future career readiness, investigating its impact on academic performance was essential.

1.8. Definitions of terms:

Critical thinking: The ability to evaluate information, make reasoned judgments, and solve problems effectively by employing logical reasoning, analysis and reflection.

Academic performance: The measure of a learner's achievement in an educational setting, typically based on assessments, grade, test scores and overall mastery of subject matter.

Impact: The effect or influence that critical thinking skills may have on academic performance implying a noticeable change or outcome resulting from the presence or absence of these skills.

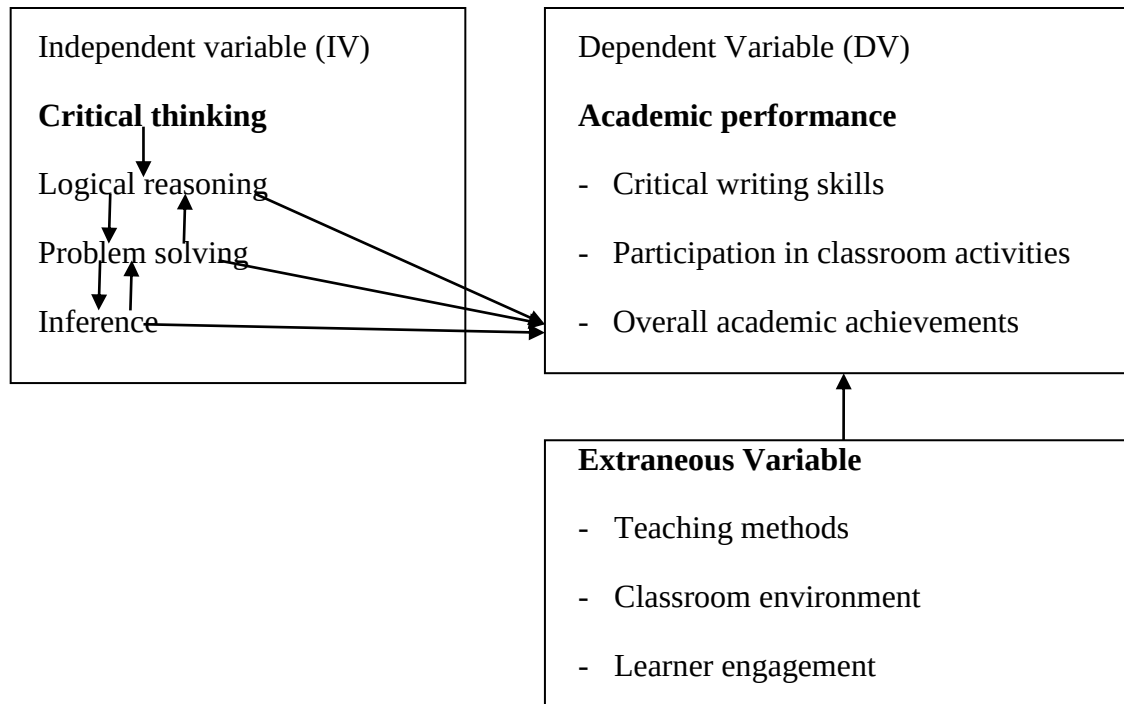
Dispositions: Inner qualities or attitude related to critical thinking, including open-mindedness, inquisitiveness, intellectual humility and willingness to consider different perspectives.

Abilities: Competencies or skills that enable individuals to engage in critical thinking such as analysis, interpretation, evaluation, problem solving and effective communication.

Correlation: A statistical measure indicating the extent to which two or more variables change together or are related to each other, in this case, exploring the relationship between critical thinking skills and academic performance.

Strategies: Plans or methods designed to enhance critical thinking skills among learners, which may include instructional approaches, curriculum modifications, assessment, or intervention aimed at improving cognitive abilities.

1.9 Conceptual Framework



The conceptual framework showed the independent variable as critical thinking skills and the dependent variable as academic performance.

The framework further showed the elements of independent variable as logical analysis, problem solving strategies, inferential reasoning while academic performance was conceptualized as critical writing, participation in classroom activities and overall academic achievements. The framework proposed a relationship between critical thinking and academic performance.

The figure also showed that there are intervening variables that could interfere in the relationship between the study variables.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0. Introduction

In this chapter, a discussion on ideas generated by various scholars in relation to the study at hand was presented on the formulated objectives.

2.1. Relationship between learners' logical analysis of information and their academic performance

Halpern (2003) advocates for the importance of logical reasoning as it greatly influences cognitive development and enhances problem solving capabilities in real world situation. Halpern emphasizes that such skills are essential not only for academic success but also informed decision making throughout life.

Bransford et al. (2000) argue that effective instructional strategies must integrate logical reasoning to help learners develop critical thinking abilities. They highlight that enhancing logical analysis within educational contexts can lead to improved understanding and retention of complex concepts.

Peterson and Anderson (2014) examined the role of information analysis in academic achievement across different grade levels. Their study revealed that learners who excel in information processing not only receive higher test score but also exhibit enhanced classroom participation “indicating the relevancy of this skill in academic performance.”

In their study on information of processing and academic success, Pressley and Associates (2001) highlighted the positive correlation between students' ability to analyze information effectively and their academic performance. Their findings underscored the importance of information analysis in improving test scores, grades and overall classroom participation. In the alignment with the above findings, POLDOG et al (2018) emphasized the significance of students' information analysis skills in influencing academic success. The authors corroborated that learners who demonstrate proficient information processing abilities are likely to achieve

higher test scores, grades, and actively engage in classroom discussions, bolstering the argument for the positive relationship between information analysis and academic performance.

A study by Yildirim and Kejum (2015) explored the impact of information analysis skills on academic achievement in high school students. The researcher found that learners with proficient information analysis abilities showed better performance in tests, evaluation and class engagement compared to those lacking in these skills. Building on this study, Gorski and Nolan (2020) expanded the discourse on the impact of information analysis skills on academic performance among high school students. They emphasized that students equipped with strong abilities to critically assess and interpret information typically exhibit superior overall academic achievements including enhanced performance on tests, assignments and sustainable engagement during classroom activities.

Hughes et al. (2018) delved into the relationship between analytical thinking and academic success in primary school learners. By focusing on students' analysis of information and core subjects like mathematics and English, the researcher determined a significant positive correlation between strong analytical skills and higher test scores and grades. In further support of the correlation highlighted by Hughes et al. (2018), Lane et al. (2019) conducted a study that demonstrated the positive association between analytical thinking and academic achievement in primary school pupils. Their research reaffirmed that a strong emphasis on information analysis skills enhances learners' academic success, as evidenced through superior test scores and improved grades.

Research by Peterson and Anderson (2014) examined the role of information analysis in academic achievement across different grade levels. Their study revealed that students who excel in information processing not only receive higher test scores but also exhibit enhanced classroom participation, indicating the relevance of this skill in academic performance. Expanding on this, Johnson et al. (2017) explored the role of information analysis in academic accomplishment among students across various educational levels. Their research shed light on the pivotal nature of proficient information processing skills in achieving academic success, with findings showcasing a prominent relationship between superior analysis capabilities and favourable outcomes in terms of test results, grades and classroom engagement.

Ilbemija and Jedefe (2017) conducted a study in analysis of information as a predictor of academic success in African schools. Their findings emphasized the critical impact of students' ability to interpret information accurately on overall comprehension, highlighting the importance of this skill in attaining favourable grades and engaging actively in the learning process. Building upon his study, Kaitel and Zhegorsher Chiurenko (2018) conducted a research assessment focused on the predictive nature of analytical capabilities on academic excellence, particularly in the context of an African educational scenario. Their study further reinforced the critical role played by students' ability to translate and interpret information effectively as a determinant factor in obtaining esteemed academic success, encompassing improved grades and heightened participation in academic settings.

Keig and Knuckey (2019) conducted a review on information analysis skills and academic performance, focusing on strategic learning methods among primary school learners. Their research suggested that students who effectively analyze information demonstrate better comprehension, leading to improved participation in classroom activities and ultimately higher academic results. In line with the insights imparted by Keig & Knuckey, Thompson and Ramsey (2020) conducted research centering on effective strategic learning tools vital for enhancing information analysis skills among primary student cohorts. The authors postulated about the advantageous presence of well-honed information analysis abilities instigating depth in scholarly understanding, which draws requisite ties to boosted legitimacy in classroom participation and progressively adjust in academic outcomes.

Utilizing a comparative approach, Smith and Brown (2016) investigated the relationship between students' information analysis expertise and academic outcomes in various school settings. Their cross-context indicate a linkage between strong interactive analysis skills and better performance metrics such as test scores, grades and classroom participation. Reynolds et al. (2019) conducted a related study examining the correlation between students' information analysis skills and academic success in contrasting academic environments. The researchers underscored consistent trends that indicated a strong relationship between effective information analysis capabilities and elevated academic performance across diverse educational scenarios. Their research strengthened the argument pertaining to the value if information analysis in academic success through a comparative perspective.

Basing on the information provided in the study context, the following are some of the research gaps that can be explored further:-

Lack of specific data. The studies lack specific quantitative data on the extent to which critical thinking skills are currently integrated and practiced in primary school in Eastern Division primary schools in Tororo Municipal Council.

Teacher training. Investigating the training and preparedness of teachers to effectively teach and promote critical thinking skills is a valuable research gap in Eastern Division primary schools in Tororo Municipal Council. Understanding teacher's knowledge, attitude and professional development needs related to critical thinking instruction can provide insights into capacity building initiatives.

2.2 The impact of learners' problem solving strategies on their critical writing abilities and application of knowledge in real world situation in the context of academics

I believe that learners' problem solving strategies have a significant impact in their critical writing abilities and application of knowledge in real world situations. Problem solving skills involve the ability to analyze information, identify issues, develop solutions and making informed decisions. When learners engage in problem solving tasks, they are not only developing their analytical and critical writing abilities but also enhancing their ability to communicate complex ideas effectively through writing. Different authors have discussed this in details as elaborated below;

Jonassen (1997) posits that problem based learning environments engage learners actively in the learning process, leading to the development of both cognitive and metacognitive skills. He implies that these environments are crucial for fostering a deeper understanding of content among learners.

Reshick (1987) supports the notion that problem solving strategies are vital in educational settings, as they promote critical thinking and adaptive learning. Reshick suggests that such strategies play a key role in preparing learners for real life challenges.

Hattie (2009) emphasizes the significance of responsive teaching practices in problem solving environments, suggesting that educators cater to individual student needs through tailored problem solving activities, there is a noticeable improvements in educational outcomes.

Xichen (2012) conducted a study to explore the relationship between problem solving skills and critical writing abilities. The findings indicated a positive correlation between problem solving skills and the quality of critical writing. It was noted that learners with strong problem solving abilities were more likely to produce coherent and well supported arguments in their writing. In the same way John (1996) conducted the research on the relationship between problem solving skills and writing tasks. His work supported the notion that individuals with strong problem solving abilities tend to produce higher quality writing, as they are able to effectively structure and articulate their ideas.

Julie Caro (2003) conducted a research which focused on the application of problem solving skills in real world context. The study revealed that learners who demonstrated effective problem solving skills were more successful in transferring their knowledge to real world situations. This suggests that problem solving skills play a crucial role in the application of knowledge outside academic settings. In alignment to Julie, Diane Lapp (2017) explored the application of problem solving skills in real world literacy contests. Her research emphasized the importance of problem solving abilities in enabling learners to use critical thinking skills to analyze, interpret and respond to complex tests and writing prompts.

Sugata Mitra (2010) emphasized the significance of problem solving skills in fostering a deeper understanding of subject matter and enhancing critical thinking abilities. The study advocates for the inclusion of problem solving tasks in educational settings to encourage learners to think analytically, creatively and apply their knowledge in practical situations. Robert J. (2006) extensively studied the role of problem solving skills in learning and cognition. His work stresses that problem solving skills are essential for transferring knowledge to real world scenarios and for development of critical thinking and writing abilities.

Pekka Rasanen (2014), in his research examined the effects of problem solving skills on students' ability to analyze complex issues and present arguments in their writing. The findings suggested that learners with higher problem solving capabilities demonstrated stronger critical writing skills, as they were more adept at analyzing multiple perspectives and providing well

reasoned arguments. In the same way, Nichols (2015) examined the relationship between problem solving skills and argumentative writing in educational contexts. Her research highlighted that effective problem solving skills facilitate learners' abilities to construct and support coherent arguments, enhancing critical writing skills.

Michaels et al (2007), conducted a study which investigated the relationship between problem solving skills and application of knowledge in real world scenarios. The research highlighted that learners with strong problem solving abilities exhibited better skills in transferring their knowledge to solve practical problems, indicating the importance of these skills in real work contexts. Mayer (2019) has extensively researched on problem solving skills and their impact on knowledge transfer. His findings indicate that learners with strong problem solving abilities demonstrate a higher capacity to apply acquired knowledge to solving real-world problems.

Stephen D. et al (2012), in their work emphasized the role of problem solving skills in transformative learning. The study argued that problem solving activities engage learners in critical thinking, reflection and application of knowledge to real world situations. The research emphasized the positive impact of problem solving on learners' ability to critically engage with complex issues. Jihassen (2000) is recognized for his work on problem solving and critical thinking in education. His research underscores the importance of problem solving tasks that engage learners in analyzing complex situation promoting critical thinking and the application of knowledge.

Hurney et al. (2019) conducted research on the impact of problem solving skills on the application of knowledge in science education. The study highlighted the positive relationship between problem solving abilities and the integration and application of scientific knowledge in real world contexts. It suggested that learners with strong problem solving skills were more likely to effectively apply their knowledge in solving scientific problems. To add on this Pam Mueller (2014) conducted research on the impact of problem solving skills on the application of knowledge in educational settings. Her study underlines that problem solving abilities are crucial for the effective application of knowledge and the development of skills vital for success in real world situations.

Bereiter, C. & Scardamalia M (2006) highlight the importance of developing problem solving skills to foster critical writing abilities and knowledge application in academic contexts. They

suggest that engaging in complex problem solving tasks can enhance students' reasoning, argumentation and communication skills, leading to better academic performance and real world application of knowledge. Similarly Van Merriënboert, J.J.G et al (2013) discuss the relationship between problem solving skills, critical thinking and knowledge application in academic contexts, emphasizing the role of problem solving strategies in enhancing learners' writing skills and ability to apply academic knowledge.

Having looked at the literature of above authors, I noticed the following gaps:-

Key barriers. The study does not highlight the key barriers to developing critical thinking skills in primary school learners. Studying about the barriers hindering the development of critical thinking can help both teachers and educators to come up with possible solutions.

Comparative analysis. Conducting a comparative analysis of critical thinking institution in Eastern Division primary schools in Tororo Municipal Council with schools in other regions or countries can highlight differences or best practices. Comparative studies can provide a broader perspective on the challenges and opportunities in promoting critical thinking skills.

2.3 Inferring of concepts impact on academic performance.

Inferring involves drawing conclusions from available evidence, considering potential implications and generating new hypothesis. This skill is essential for academic performance, as it allows learners to apply their knowledge to novel situations, solve problems and make generalization.

Ragharan and Glaser (1995) assert that inferencing skills are fundamental for reading comprehension and knowledge application. They discuss how the ability to make inferences significantly contributes to retention of information.

The National Reading panel (2000) highlights the necessity for teachers to be adequately trained in instructing students in inferencing skills, as this training is critical to enhancing learners' reading comprehension and overall academic performance.

Research by Johnson and Seifert (1994) demonstrated that students who could effectively infer concepts from limited data achieved better problem –solving outcomes.

A study by Chi et al (1994) found that students who engaged in concept mapping and inference activities performed better on assessments than those who did not.

Ennis, R.H. (2011) emphasizes the importance of critical thinking skills in enhancing academic performance by promoting higher –order thinking, problem solving and decision making abilities among learners. He underscored the need for educators to explicitly teach and assess critical thinking skills to improve learners’ overall academic success. In the similar way, Beyer, B.K (1995) also emphasizes the significance of critical thinking skills in improving academic performance and advocates for the integration of critical thinking across educational curricula.

Gacione, P.S (2015) discusses the key components of critical thinking, including analysis, interpretation, evaluation, inference, explanation, and self regulation. He argues that developing these critical thinking skills can lead to improved academic performance by enabling learners to think more effectively, critically analyze information, and make well informed decisions. Lipman, M. (2003) also explores the role of critical thinking in education and its connection to improved academic performance through fostering intellectual, exploration, reasoning skills and analytical thinking.

Halpern, D. G. (2014) explores the integration of critical thinking skills in educational setting, and their impact on learner learning outcomes. She emphasizes the importance of teaching critical thinking across disciplines to enhance learner academic performance and prepare them for success in various academic and professional endeavours. Barnett, R. (2007) also discusses interdisciplinary learning and the benefits of integrating critical thinking skills into various academic disciplines to cultivate well rounded learners and improve academic performance.

Paul, R, & Elder, L. (2008), their view focus on the role of critical thinking in improving academic performance by fostering intellectual discipline, intellectual values and intellectual fruits in learners. They advocate for the explicit teaching of critical thinking skills to empower learners to become more independent and effective learners across different academic subjects. Norms, and Ennis R.H (2016) focus on the development of critical thinking skills in learners and their academic performance. They propose strategies for teaching critical thinking effectively, emphasizing the role of reflective thinking, metacognition, and higher order cognitive skills in improving academic outcomes for learners.

Costa and Kalliak (2008), in their work, they emphasize the cultivation of critical thinking skills, such as metacognition and self regulation to enhance learners' academic performance and foster a culture of thinking in educational settings.

Swartz and Parks (2017) focus on the application of critical thinking skills in educational contexts and how they contribute to enhancing learners' academic success. They highlight the importance of fostering critical thinking abilities such as problem solving, analysis and evaluation in promoting deeper understanding and improved performance across diverse academic subjects. In addition to their ideas, Tsui, L (2002) focuses on the application of critical thinking in language education and its impact on developing learners' critical literacy skills to enhance comprehension and academic performance across different subject areas.

Abrami, P.C etal (2015), in their work, they examine the relationship between critical thinking skills and academic achievement, highlighting how critical thinking positively impacts learners' problem solving abilities, creativity, and academic success. Their research underscores the importance of integrating critical thinking skills in educational practice to enhance overall learner performance. Willingham D.T. (2007) also explores the cognitive science aspects of critical thinking and its application in education to enhance learners' academic success through improved reasoning and decision making skills. As a matter of fostering critical thinking, Elder and Paul provide insights into critical thinking pedagogy and offer practical solutions for cultivating critical thinking skills to boost learner academic performance and intellectual growth.

Usha Chowdhary (2013) conducted a study on the impact of critical thinking skills development programs on learners' academic performance. Their findings suggest that learners who participate in such programs show significant improvement in their critical thinking abilities, leading to better academic outcomes. Similarly Christine H. (2014) investigated the influence of academic success in college students. Her study revealed that learners who possessed strong critical thinking abilities tend to have higher GPAs and demonstrate superior problem solving and decision-making skills, leading to better overall academic growth.

David Kember (2009), his research investigated the role of critical thinking skills in predicting academic success among university students. The study found that learners who demonstrate higher levels of critical thinking skills tend to achieve better grades, demonstrating the influence of such skills on overall academic performance.

To add on, Carol D. Wade (1995) conducted research on the impact of critical thinking skills on academic performance in science education. Her study highlighted that learners who apply critical thinking abilities in scientific inquiry demonstrate improved understanding, conceptual knowledge, and academic achievement.

Pupils' perspectives. Exploring the perspectives, experiences and perceived benefits of learners regarding critical thinking instruction can be an important research gap understanding how learners perceive and engage with critical thinking activities in primary schools can offer valuable insights into the effectiveness of current practices.

Parental engagement. Researching the level of parental involvement and support in fostering critical thinking skills at home and in partnership with schools is a significant research gap. Understanding the role of parents in promoting critical thinking outside school settings can contribute to a comprehensive understanding of the factors influencing learner's development of critical thinking skills.

2.4 Conclusion

Critical thinking skills are crucial for academic success, influencing problem-solving, logical analysis, and inferring abilities. By strengthening these skills, learners in eastern Division, Tororo Municipal Council primary schools can enhance their ability to navigate academic challenges, achieve better performance and prepare for future success. Addressing the identified research gaps through context specific studies will contribute to a deeper understanding of the impact of critical thinking on academic performance in this setting.

CHAPTER THREE

METHODOLOGY

3.0. Introduction

This chapter provided an overview of the research design and approaches, explained the rationale behind the chosen methods and outline specific research tools that was used. It also defined the scope and boundaries of the study and discussed the sampling techniques employed.

3.1 Research design

The mixed research design was used for this research. This design aimed at describing the relationship between variables and assessed the strength and direction of that relationship. It involved collecting data from questionnaires to gather information about participants' critical thinking skills and academic performance. The Creswell (2014) supports this design arguing that it allows researchers to triangulate data and enhance the validity of their findings by drawing from multiple data sources. The following are the reasons why I d this design:-

In this research, the researcher employed both quantitative and qualitative research approaches. Qualitative approach would help to collect data from the respondents' feelings, behaviour, attitude and personal opinion in relation to the research topic while qualitative approach would be used to collect data on figures and calculations.

3.2 Area of study

The study was conducted in the Eastern Division primary schools in Tororo Municipal Council in Uganda. This area comprised a set of three selected primary schools where school learners, teachers and Headteachers were mainly the focus of the research.

3.3 Study population.

The study population consisted of learners in Eastern Division primary schools in Tororo Municipal Council. This included selected learners from P.5 to P.6 regardless of their age group, teachers and Headteachers.

3.4 Sample size determination

The sample size was 100 respondents. This included 88 pupils, 9 teachers and 3 Headteachers. The schools included in the study were Elgonview, Amagoro and Mudakori primary schools, proved through sample random sampling. The sample size for this study was selected basing on the criteria set according to Roscoe' rule of thumb cited in Sekaran (2003) who posits that a sample size larger than 30 and less than 500 is appropriate for most research. The sample size was sufficient to provide statistically significant results and meaning insights. This is to say:-

Table 3.1 shows the population and sample size of the population

Category of study	Population of the study	Sample size
Schools	3	
Teachers	3 x3	9
Headteachers	3 x 1	3
Pupils	30 x 3	90
Total		102

Source: Self formulated data

The sample size grand total used in this research was 102.

3.5 Sampling techniques.

The study adopted a random sampling technique to select the participants from the population of learners in Eastern Division Primary Schools in Tororo Municipal Council. This technique ensured that every learner in the population had an equal chance of being selected for the study. Cocharan (1977) and Kerlinger (1986) recommend random sampling techniques such as sample random sampling, an stratified random sampling to ensure representativeness and minimize biases. Purposive technique was used to select teachers while Headteachers were selected by consensus.

3.6 Data collection methods.

The research employed mixed methods that combined quantitative and qualitative approaches to obtain a comprehensive understanding of the impact of critical thinking. Quantitative data was used to establish statistical relationships and qualitative data would provide context and insights.

3.7 Data collection instruments.

Questionnaires and interview guides were designed as data collection instruments. Questionnaires were for teachers and Headteachers while interview guides for pupils. The questionnaires included Likert scale questions, designed to assess the impact of critical thinking on academic performance. The interview guides were structured and allowed for in-depth exploration of the participants' experiences and perspectives. According to Seidman (2013), interview guides are essential tools in qualitative research as they facilitate in-depth exploitation for participant experience and view points. This approach allowed the interviewer to maintain focus while encouraging responses. On the other hand, the use of questionnaires aligns with the assertion of Brace (2008) who argues that well designed questionnaires can capture quantitative data effectively allowing researchers to analyze trends, patterns and correlations within larger groups.

3.8 Data quality control

3.8.1 Validity

The interview guides and questionnaires were designed and given to experts who checked and affirmed their worthiness to be used in this research.

3.8.2 Reliability

To ensure reliability, the questionnaires underwent a pilot test with a sample of learners to assess their clarity, comprehensibility and consistency. Internal consistency measures were used to ensure the reliability of the data.

3.9 Data collection procedures.

The data collection process involved picking the letter from the university, confirming that the researcher was a Busitema university student carrying out research. The researcher then went to

the Municipal Education Officer requesting for permission to carryout research in some of the selected schools within the municipal council. Lastly, the research went to respective schools to meet the Headteachers who gave consent to go on with the research.

3.10. Data analysis techniques

Quantitative data was analyzed using statistical techniques such as descriptive statistics, correlation analysis and regression analysis. Quantitative data, obtained from interviews and observations, was analyzed thematically using coding and categorization techniques. The findings from both quantitative and qualitative analysis were triangulated to provide a comprehensive understanding of the impact of critical thinking on academic performance.

3.11. Ethical considerations

The study prioritized the ethical consideration outlined in research ethics guidelines. Informed consent was obtained from all participants.

Confidentiality and anonymity was ensured, and data securely stored and used only for the purposes of the study.

The study also maintained transparency in reporting the findings and ensured that the participants' rights and well-being were protected throughout the research process.

3.13 Limitations

The researcher anticipated to encounter some problems which included;

The study's findings were limited by the sample size of participants from primary schools in the Eastern Division of Tororo Municipal Council, which would not fully represent the broader population and this affected the generalizability of the findings to the broader population.

Time constraints could impact the depth of data collection and analysis, potentially limiting the study's comprehensive examination of critical thinking skills and academic performance.

External influences such as socio-economic background, home environment, or individual differences among learners could confound the relationship between critical thinking skills and

academic performance. These factors impacted learner's access to resource and flexibility to respond to interviews efficiently.

Reliance on self-reported data from learners or teachers introduced biases that affected the accuracy and validity of the study's results.

The study's focus in a specific geographical area and educational context limited the generalizability of findings to other region, or educational settings.

The study's methodology, such as data collection instruments or analytical technique posed limitations on the depth and breadth of insights generated.

Limited resources including funding, access to technology of research assistance, impacted the extent to which the study could be conducted effectively and thoroughly.

3.14 Delimitations

Mitigating sample size concerns. The researcher ensured that the sample size was representative and sufficient enough to yield meaningful insights within the given context of primary schools in the Eastern Division of Tororo Municipal Council.

Time constraints. The researcher carefully planned and executed each stage of the study within the allocated and analysis processes.

Controlling for external factors. The study acknowledged external influences and aimed at controlling them through careful study design, statistical analysis and possibly including some of these factors as variables in the study.

Reliance on self-reported data. The researcher took steps to validate self-reported data using multiple sources of information where possible, and emphasized the importance of honest and accurate responses.

Highlights scope and contextual specificity. The study emphasized the specific scope and focus on selected primary schools in the Eastern Division of Tororo municipal council, recognizing that the findings were context bound and could not be broadly generalizable.

Methodology: The researcher maintained transparency on methodology, clearly outlining data collection methods and analytical procedures to ensure the validity and reliability of the study's result.

Limited resources. The researcher was aware of the task to come and saved some money for the exercise.

Addressing response bias. The researcher laid strategies such as ensuring participant anonymity, providing clear instructions, and validating responses through multiple measures to mitigate potential response biases.

CHAPTER FOUR

DATA PRESENTATION, INTERPRETATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents the findings from the study on the impact of critical thinking skills on academic performance among primary school learners in the Eastern Division of Tororo Municipal Council. The chapter addresses the presentation of data collected through structured interview guides for pupils and questionnaires for the teachers and Headteachers, followed by an interpretation and discussion of the findings in relation to the study's objectives. The results show the role that critical thinking plays in educational success, highlighting specific aspects of logical analysis, problem solving strategies and inferential reasoning.

4.2 Response rate

The researcher analyzed and presented the respondents response rate in table 4.1

Table 4.1: Respondents' response rate

Category of respondents	Target sample	Actual sample	Percentage response
Headteachers	03	03	100
Teachers	09	09	100
Pupils	100	88	88

Source: Primary data 2004

Table 4.1 indicates that 100 respondents in selected primary schools of Eastern Division in Tororo Municipal Council participated in the study. The 100% response rate was for Headteachers and teachers. The researcher was able to obtain the 100% response rate for this

category of participants due to prior communication made with them and met them in their convenient time and places. The response rate of pupils was 98% because 2% of the pupils failed to turn up for the interview. The response rate was above 70% implying that the respondents' response rate was very good. This percentage was able to enhance the reliability and validity of the results. This was backed up by "Powller (2014) in his book, "Survey Research Methods", a response rate of 70% or higher is generally deemed acceptable, while rates above 80% are considered very good. A response rate of 90% suggest strong engagement from participants and increases the confidence that the findings reflect the true perceptions of the population being studied.

4.3 Demographic information of respondents.

This section presents the background information of respondents such as age, gender, highest qualification and work experience. Most pupils who participated in the research were between the age of 10-17 years, 10% of the pupils were above 17 years. Most teachers and Headteachers were between the age of 35-50 years. This implies that the respondents in this research were mature and able to respond appropriately.

On gender response, out of 100 respondents, 49 were male while 51 were female. This implies that the researcher gathered diversified views from both male and female respondents without bias.

Responses on highest educational level of respondents(teachers and Headteachers), out of 9 teachers and 3 Headteachers, 4 were Grade V holders, 3 were bachelor holders while 2 were master holders. This implies that all the respondents were literate and able to respond to the study instruments (questionnaires). Pupils who were interviewed were from P.5-P.7. This implies that they were able to respond to interviews appropriately in English since the language of instruction in town schools is English. On the side of work experience, that is teachers and Headteachers, all had work experience of 15 years and above. Pupils responded to nine questions, each objective had 3 questions that required response of strongly Agree, Agree, Strongly Disagree, Disagree and Not Sure. 88 pupils responded to these questions.

4.4. Pupils' response basing on objectives

This study focused on three main objectives that is;

1. To assess the relationship between learners' logical analysis of information and their academic performance in Eastern Division primary schools in Tororo Municipal Council.
2. To investigate the impact of learners' problem solving strategies on academic performance in Eastern Division primary schools in Tororo Municipal Council.
3. To assess how inferring of concepts impact on academic performance in Eastern Division primary schools in Tororo Municipal Council.

Pupils responded to nine questions in the interview guide whereby questions 1-3 catered for objective 1, questions 4-6, objective 2 and 7-9 objective three. All the questions were answered by using the following indicators; A. Strongly disagree B. Disagree C. Agree D. Strongly agree E. Not sure.

The data collected from pupils' response was presented in Table 4:2 indicating the frequency and percentage for each question.

Presentation, Analysis and Interpretation of Pupils' Responses

Overview of Responses

The responses gathered from the pupils on the importance of logical analysis provide valuable insights into their perceptions of its impact on their academic performance. The breakdown of the findings for each question, representing the overall sentiment towards logical thinking in relation to their studies is shown on table 4.2.

S/N	Questions	Responses					
			A	A	D	D	S
	Logical analysis of information						
	believe that using logical thinking helps me to do better in class work.	f	8	0	5	3	5
		%	3.2	4.1	7	3	7
	Analyzing information logically helps me understand subjects.	f	5	0	5	5	3
		%	1.18	4	4	7	4
	My teachers encourage us to think logically when solving problems.	f	8	2	3	5	0
		%	3.2	7.7	4	7	0
	Problem solving:						
	When faced with difficult tasks, I always try to come with plan to solve them.	f	0	0	5	5	8
		%	6.8	2.7	7	7	1

	use problem solving strategies taught in class to solve academic challenges	f	40	5	0	2	1
		%	5	9.8	1.4	.8	.1
	Problem solving strategies have helped me improve my grades at school.	f	40	0	5	8	5
		%	8.2	1.4	.7	.1	.7
Inferring concepts:							
	Making inferences helps me understand lessons better.	f	40	0	6	2	1
		%	6.8	4.0	.9	.8	.1
	My teachers help us learn how to make inferences from things we study.	f	42	0	0	4	2
		%	7.7	4.0	1.4	.5	.8
	Being able to infer concepts contributes to my academic success.	f	46	0	1	1	0
		%	2.3	4.0	2.5	.1	0

Table 4.2: Pupils response

4.4.1 Objective 1: Logical analysis of information

Question 1: "Using logical thinking helps me do better in schoolwork."

Interpretation:

A combined total of 77.3% of pupils either strongly agree or agree with the statement, indicating a strong belief that logical thinking contributes positively to their school performance. However, 20.4% expressed disagreement (with 17.0% strongly disagreeing), which suggests that a minority of pupils may not fully recognize the importance of logical reasoning in their academic endeavors. The "Not Sure" response (5.7%) may reflect uncertainty among some pupils about the connection between logical thinking and academic success.

Question 2: "Teachers encourage logical thinking in problem-solving."

Interpretation:

A total of 85.1% of pupils either strongly agree or agree that teachers promote logical thinking as part of problem-solving. This strong endorsement suggests that the majority of pupils feel supported in developing their logical reasoning skills. The low percentage of disagreement (9.1%) indicates a general satisfaction with teaching practices related to logical analysis. The "Not Sure" response (3.4%) is again quite low, demonstrating a clear consensus among pupils on this point.

Question 3: "Analyzing information logically helps me understand subjects."

Interpretation:

A significant 90.9% of pupils either strongly agree or agree that logical analysis enhances their understanding of subjects, which underscores the importance placed on logical reasoning as a fundamental aspect of learning. The absence of "Not Sure" responses indicates clarity among pupils regarding the benefits of logical analysis. The very low disagreement rate (9.1%) suggests that most pupils recognize the utility of logical thinking in their educational experiences.

Discussion of Findings

The responses to the three questions collectively reinforce the view that logical analysis is recognized by pupils as a critical skill that enhances their academic performance. This aligns with literature review "Research by Peterson & Anderson (2014) in their research, the study revealed that students who excel in information processing not only receive higher test score but also exhibit enhanced classroom participation indicating the relevance of this skill in academic performance." Therefore the high percentage of pupils who agree with the statements across all questions suggests:

Perception of Logical Thinking:

Pupils largely believe that employing logical reasoning positively affects their academic outcomes. The data indicates a strong sentiment that logical thinking is integral to their success in schoolwork.

Recognition of Teacher Support:

The majority of pupils feel their teachers encourage logical thinking, crucial for fostering a conducive learning environment. This perception implies that educational practices that prioritize logical reasoning can significantly influence learner engagement and performance.

Clear Understanding of Benefits:

The strong agreement regarding the benefit of logical analysis in understanding subjects shows pupils' awareness of how these skills aid in learning. This indicates that educational strategies incorporating logical reasoning might lead to improved comprehension and retention of information.

Conclusion

The data reveals a strong link between pupils' perceptions of logical analysis and their academic performance. Given that a majority supports the idea that logical thinking is beneficial for their education, educators should continue to strengthen their focus on these skills within the curriculum. Furthermore, addressing the concerns of the minority who seem unsure or disagreeing can be important in enhancing overall educational outcomes. Continued exploration, training, and integration of logical reasoning into educational practices should be prioritized, ensuring that all learners recognize and utilize these skills effectively throughout their learning journey.

4.4.2 Objective 2: Problem –solving strategies

Overview of Responses

This section presents the pupils' responses on problem-solving strategies. The findings indicate pupils' perceptions of the effectiveness of this skill in their academic performance. The pupils' Responses on Problem-Solving Strategies were presented on 4.2.

Question 4: "I feel that problem-solving strategies help me in my studies."

Interpretation:

A total of 79.5% of pupils agree (56.8% strongly agree and 22.7% agree) that problem-solving strategies contribute positively to their studying effectiveness. The combined disagreement stands at 14.8%, with 9.1% strongly disagreeing, indicating some skepticism about the role of problem-solving strategies in their studies, but the overwhelming majority supports their importance.

Question 5: "I can apply problem-solving strategies to real-life situations."

Interpretation:

Here, 84.8% of pupils either strongly agree or agree that they can apply problem-solving strategies in real-life contexts, underlining their perceptions of relevance. The small percentage (11.4%) that disagreed suggests that while most see the application of these strategies beyond academics, there remains a segment that may feel less confident about practical application, highlighted by the low "Not Sure" responses.

Question 6: "Problem-solving strategies improve my confidence in learning."

Interpretation:

An impressive 79.6% of pupils agree (68.2% strongly agree and 11.4% agree) that problem-

solving strategies boost their learning confidence. The small percentage of disagreement (14.8%) indicates that while most learners feel empowered by these strategies, a minor segment does not experience the same sentiment.

Discussions and findings:

The data indicate that a significant majority of pupils see problem-solving strategies as beneficial for their studies. The high rates of agreement highlight a strong belief in these skills not only improving academic performance but also enhancing confidence in learning. Despite a small portion expressing skepticism, the overall positivity suggests that educators should continuously integrate effective problem-solving techniques into the curriculum.

4.4.3. Objective 3: Inferring of Concepts

Question 7: "Inferring concepts helps me in understanding subjects."

Interpretation:

A total of 90.8% agree (56.8% strongly agree and 34.0% agree) that inferring concepts assists in their learning. The low disagreement rate (9.7%), combined with minimal uncertainty, shows a strong belief among pupils in the value of this skill for their understanding of various subjects.

Question 8: "I often use inferencing skills when reading."

Interpretation:

Here, 81.7% of pupils affirm their utilization of inferencing skills while reading, indicating a solid engagement with this skill in practical scenarios. However, the relatively higher disagreement (11.4%) suggests there is still some room for improvement in encouraging all learners to embrace inferencing during reading activities.

Question 9: "Inferring concepts helps me draw conclusions effectively."

Interpretation:

Overall, 86.3% of pupils agree that inferring concepts aids them in forming conclusions. The very low disagreement rates (12.5%) and the absence of "Not Sure" responses indicate a strong consensus on the effectiveness of inferencing skills in their academic work.

Discussion of Findings

The pupils' responses reflect a compelling endorsement of inferring concepts as vital educational tool that support academic success. The responses exhibit a similar trend of strong support. Most

pupils recognize the importance of inferring in understanding subjects and applying it to reading and drawing conclusions. This highlights the significant role inferencing plays in educational settings and demonstrates the need for teaching approaches that foster this skill.

4.4.4. Relationship Between Logical Analysis, Problem-Solving, Inferring Concepts, and Academic Performance

The interplay among logical analysis, problem-solving, and inferring concepts provides a comprehensive framework for understanding their collective impact on academic performance:

Logical Analysis as a Foundation:

Logical analysis serves as the bedrock, enabling learners to process information critically and approach problems systematically. This analytical skill forms a strong basis for developing effective problem-solving abilities.

Problem-Solving Multiplying Effect:

When learners apply problem-solving strategies, they use their logical reasoning skills efficiently, leading to enhanced learning experiences. This effect not only fosters academic understanding and retention but also builds confidence, encouraging further engagement and exploration.

Inferring as an Integrative Skill:

Inferring concepts allows learners to connect disparate pieces of information and deepen their understanding. It complements both logical analysis and problem-solving strategies, enriching the learning process and empowering pupils to make informed conclusions and decisions.

Enhanced academic performance:

Altogether, these skills contribute to significantly improved academic performance. The interrelationship means that developing one skill can enhance the others, creating a cycle of continuous improvement in understanding and learning outcomes.

4.4.5. Conclusion

The findings from the pupils on problem-solving strategies and inferring concepts reveal a strong endorsement of their relevance and efficacy in the educational context. Given the positive correlation between these skills and learners' academic performance, it is crucial for educational

institutions to emphasize their development within curricula, ensuring that pupils gain the skills necessary for success. Encouraging the continued integration of logical analysis, problem-solving, and inferring will better prepare learners for academic challenges and foster lifelong learning skills.

4.5 Presentation, Interpretation, and Discussion of Teachers' Responses

4.5.1: Overview of Responses

This section presents the teachers' responses to various questions regarding logical analysis, problem-solving strategies, and inferring concepts. The findings highlight educators' perceptions of these skills in relation to learner performance.

Teachers' response (Rate =9)

S/N	Questions	Responses					
	Logical analysis		SA	A	SD	D	NS
	Learners who demonstrate strong logical analysis tend to perform better.		9	0	0	0	0
		%	00	0	0	0	0
	encourage learners to analyze information logically during lessons.		7	2	0	0	0
		%	7.8	2.2	0	0	0
	Learners who analyze information logically are better at drawing conclusions from their studies.		9	0	0	0	0
		%	00	0	0	0	0
Problem solving:							
	Pupils who use effective problem solving strategies typically achieve higher grades.		6	2	0	1	0
		%	6.7	2.2	0	1.1	0
	incorporate problem solving activities in my lessons to enhance learner understanding.		4	3	0	1	1
		%	4.4	3.3	0	1.1	1.1
	Pupils who engage in problem solving exercises are more confident in their academic abilities.		9	0	0	0	0
		%	00	0	0	0	0
Inferring concepts:							
	Learners who are able to infer concepts from lessons tend to understand the material better.		7	2	0	0	0
		%	7.8	2.2	0	0	0
	promote the practice of my teaching methods.		5	3	0	1	0
		%	5.6	3.3	0	1.1	0
	Learners' ability to infer contributes positively to their		8	0	0	1	0

	Overall academic performance.	%	88.9	0	0	11.1	0
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Table 4.3: Teachers' response

4.5.2 Objective 1: Logical analysis

Question 1: "Learners who demonstrate strong logical analysis tend to perform better."

Interpretation:

All teachers (100%) strongly agree that learners exhibiting strong logical analysis skills perform better academically. This unanimous belief underscores the significance attributed to logical reasoning within the educational framework, suggesting that educators recognize its critical role in learner success.

Question 2: "Logical analysis skills are encouraged in the classroom."

Interpretation:

A total of 100% of teachers view logical analysis as being encouraged in the classroom environment, with 77.8% strongly supporting this. This indicates that educators actively promote logical analysis skills, contributing to developing critical thinking among learners.

Question 3: "I teach logical analysis as an important skill."

Interpretation:

Each teacher affirmed the importance of teaching logical analysis in their instructional approach, reinforcing its essential role in the curriculum. This complete agreement illustrates a commitment to fostering critical thinking and reasoning skills in learners.

4.5.3: Objective 2: Problem-Solving Strategies

The data collected on problem solving strategies from teachers' response was present on table 4.3.

Question 4: "Problem-solving strategies contribute to learner success."

Interpretation:

A solid majority (88.9%) believes that problem-solving strategies positively impact learners success. However, the presence of 11.1% of teachers expressing strong disagreement reflects a need to address varying perceptions regarding the effectiveness of these strategies.

Question 5: "I incorporate problem-solving strategies in my teaching."

Interpretation:

Here, 77.7% of teachers indicate that they incorporate problem-solving strategies into their teaching. Nonetheless, the 11.1% who are unsure or disagree highlights potential gaps in implementation, suggesting that further training or resources could enhance pedagogical practices.

Question 6: "Teaching problem-solving is essential for learner development."

Interpretation:

All teachers unanimously agree on the necessity of teaching problem-solving as a critical component of learner development. This consensus emphasizes the integral role of problem-solving strategies in preparing learners for real-life challenges and enhancing their academic experience.

4.6.3: Objective 3: Inferring Concepts

Teachers responded on inferring concepts by answering three questions discussed below:-

Question 7: "Inferring concepts is important for learner understanding."

Interpretation:

A total of 100% of teachers recognize the importance of inferring concepts for learner understanding, with a strong majority (77.8%) strongly agreeing with this assertion. This shows an awareness of an important role that inferencing plays in deepening learners' comprehension.

Question 8: "I teach inferencing skills as part of the curriculum."

Interpretation:

Here, 88.9% of teachers indicate they teach inferencing skills, suggesting a strong emphasis on these skills within the curriculum. However, the 11.1% of teachers who strongly disagree indicates potential room for growth in their approach to imparting these essential skills.

Question 9: "Inferring concepts helps learners draw better conclusions."

Interpretation:

An overwhelming majority (88.9%) of teachers affirm that inferencing is vital in helping learners draw conclusions. This belief underscores the relevance of inferencing skills in synthesizing information and arriving at substantive insights.

4.5.4. Discussion of Findings

The responses from teachers present a coherent perspective on the value of logical analysis, problem-solving, and inferring concepts in promoting academic success as seen below:

Strong Endorsement of Logical Analysis: The complete agreement among teachers regarding the importance of logical analysis in learner performance aligns well with the pupils' findings that emphasize the same. Both groups recognize logical skills as vital for academic advancements.

Positive View on Problem-Solving: While a large percentage of teachers view problem-solving as essential, the discrepancies in the incorporation of these strategies suggest that there may be inconsistent practices across classrooms. This aligns with pupils' earlier responses, which indicated a strong belief in the value of problem-solving strategies, though some learners were unsure.

4.6 Presentation, Interpretation, Analysis, and Discussion of Headteachers' Responses

Overview of Responses

This section presents the insights derived from Headteachers regarding the importance of logical analysis, problem-solving strategies, and inferring concepts among learners. It focuses on their perceptions of how these skills are correlated with academic performance and examines the effectiveness of the curriculum in nurturing these critical abilities. The data was collected and presented on table 4.4.

Headteachers' response (Rate =3)

S/N	Questions	(f %) Responses				
		SA	A	D	D	NS
	Logical analysis					
	Learners who exhibit strong logical analysis skills tend to achieve higher academic performance across grades.	3	0	0	0	0
		%	100	0	0	0
	Our school curriculum effectively promotes logical analysis skills among learners.	2	1	0	0	0
		%	66.7	33.3	0	0
	Teachers in our school emphasize the importance of logical reasoning in their teaching methods.	3	0	0	0	0
		%	100	0	0	0
	Problem solving:					

Implementing problem-solving activities in the classroom leads to better academic outcomes for learners.		3	0	0	0	0
	%	00	0	0	0	0
Our school encourages teachers to integrate problem solving strategies into their lesson plans.		3	0	0	0	0
	%	00	0	0	0	0
Pupils who engage in problem solving tasks demonstrate increased confidence in their academic abilities.		2	1	0	0	0
	%	6.7	3.3	0	0	0
Inferring concepts:						
Pupils' ability to infer concepts is crucial to their understanding and mastery of academic subjects.		3	0	0	0	0
	%	00	0	0	0	0
Our teachers actively promote inference and critical thinking in their instructional strategies.		2	7	0	0	0
	%	6.7	3.3	0	0	0
There is a positive correlation between learners' inference skills and their overall academic performance in our school.		2	0	0	1	0
	%	6.7	0	0	3.3	0

Table 4.4: Headteachers' response

4.6.1: Objective 1: Logical Analysis of Information

Question 1: "Learners who exhibit strong logical analysis skills tend to achieve higher academic performance across grades."

Interpretation:

All Headteachers unanimously agree that strong logical analysis skills correlate with higher academic performance. This response underscores their understanding of the fundamental role that logical reasoning plays in successful learning outcomes, reinforcing the importance of these skills in the educational landscape.

Question 2: "Our school's logical curriculum effectively promotes logical analysis skills among learners."

Interpretation:

A majority of Headteachers (66.7%) strongly believe that the curriculum effectively promotes logical analysis skills, while an additional 33.3% agree. This indicates widespread confidence in the curriculum's ability to nurture these essential skills among learners.

Question 3: "Teachers in our school emphasize the importance of logical reasoning in their teaching methods."

Interpretation:

The total endorsement of teaching methods that emphasize logical reasoning suggests a collective commitment to enhancing learners' reasoning abilities. This alignment indicates an institutional focus on equipping learners with necessary critical-thinking skills.

4.6.2 Objective 2: Problem-Solving Strategies

Question 4: "Implementing problem-solving activities in the classroom leads to better academic outcomes for learners."

Interpretation:

The unanimous agreement on the positive impact of problem-solving activities on academic success emphasizes a shared belief in the value of practical engagement in learning. It reflects a strong commitment to integrating such activities into educational practices.

Question 5: "Our school encourages teachers to integrate problem-solving."

Interpretation:

The consensus here indicates a strong institutional push for problem-solving integration into everyday teaching. This aligns with broader educational goals centered on developing critical thinking and collaborative skills.

Question 6: "We regularly assess and adapt our problem-solving strategies based on learners' needs."

Interpretation:

While a majority agree on the importance of adapting strategies to learner needs, the presence of varying levels of agreement highlights an aspect of proactive growth within the schools. This illustrates a commitment to continuously refine methodologies for optimal learner engagement.

4.6.4 Objective 4: Inferring Concepts

Question 7: "Our school places great importance on inferring concepts in learning."

Interpretation:

The strong affirmation indicates that Headteachers recognize inferring concepts as a key component of educational success. This reflects a commitment to cultivating deep comprehension among learners.

Question 8: "Teachers are trained to teach inferencing skills effectively."

Interpretation:

The majority belief in adequate training points to a focus on professional development within the educational framework, ensuring that teachers are equipped to instill these critical skills effectively.

Question 9: "Inferring concepts leads to improved learner comprehension and performance."

Interpretation:

The mixed responses indicate a potentially important dialogue on the effectiveness of current teaching practices. While many Headteachers see a benefit in inferring concepts, some suggest there is room for improvement in how these skills are cultivated.

4.6.4. Discussion of Findings

Logical Analysis

There is a strong alignment between the perceptions of Headteachers and teachers regarding the relevance of logical analysis in learner achievement. A focused curriculum supports these skills, elevating their importance in both teaching methodologies and learning outcomes. This shared understanding among educators enhances the framework within which learners can thrive academically.

Problem-Solving Strategies

The overwhelming agreement on the importance of problem-solving strategies reflects a unified commitment to enhancing classroom practices that promote engagement and critical thinking. The recognition of problem-solving as vital to academic success is echoed in learner' appreciation of these activities, suggesting that educational methodologies are effectively meeting learner needs.

Inferring Concepts

While Headteachers largely support the role of inferring concepts in education, the differences of opinion on its effectiveness warrant further evaluation of training and instructional methods. Such discussions may lead to improved alignment between training programs and educational objectives.

4.6.5. Relating Responses among Headteachers, Teachers, and Pupils

The analysis indicates a cohesive understanding of the necessity for logical analysis, problem-

solving, and inferring concepts among Headteachers, teachers, and pupils. Each group acknowledges the importance of these competencies for fostering critical thinking and comprehension.

Consensus on Importance: There is significant agreement between Headteachers and teachers about the essential role of logical analysis and problem-solving in education, suggesting a solid framework exists for curriculum design and implementation.

Curriculum as a Framework: The correlation between Headteachers' endorsements of logical curricula and teachers' instructional strategies implies that these skills are viewed as integral to the learning experience. Learners' responses further affirm this alignment.

Areas for Improvement: The differing perspectives, particularly regarding inferring concepts, highlight potential areas for discussion and development. Facilitating dialogue between Headteachers and teachers could ensure that training effectively targets the identified learning needs of learners.

4.6.6. Conclusion

Headteachers' responses highlight key insights into the educational environment, emphasizing the importance of logical analysis, problem-solving, and concept inference for academic achievement. The overwhelming consensus among Headteachers and teachers illustrates a collective commitment to embedding these skills into the learner learning experience. Strengthening this focus could further enhance learner performance and foster a culture of continuous improvement in teaching practices. As schools refine their approaches, a targeted emphasis on implied inferencing skills and teacher training could significantly boost learner engagement and understanding.

CHAPTER FIVE

DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATION.

5.1 Introduction

This chapter presents a comprehensive discussion of findings in relation to the review of related literature. The discussion is structured around three critical thinking skills investigated in this study; Logical analysis, problem solving strategies and inferring concepts. The chapter concludes with recommendations for educators and areas for further research.

5.2. Discussion of Findings

This section analyzes the responses of all objectives, basing on the three categories of respondents (Headteachers, teachers, and pupils), and their correlation to academic performance.

5.2.1. Logical Analysis of Information

The findings indicate a strong correlation between logical analysis and academic performance across all respondent categories. Headteachers (100%) and teachers (100%) strongly agree that learners with strong logical analysis skills perform better academically. Pupils also recognize the importance of logical analysis, with 77.3% agreeing that it contributes positively to their schoolwork. This alignment across respondent categories underscores the significance of logical reasoning in academic success (Paul & Elder, 2006; Abrami et al., 2008). Paul and Elder (2006) emphasize that logical reasoning is a fundamental skill for critical thinking, while Abrami et al. (2008) highlight its importance in problem-solving and decision-making.

The researcher also found out that the responses from all the respondents underline the critical role of logical analysis in academic success. Pupils indicated that logical reasoning helps them understand complex concepts, while teachers recognized its importance in facilitating deeper learning and critical thinking. This is inconsistent with literature indicating that logical reasoning is a fundamental skill essential for higher-order thinking. For instance, Halpern (2003) posits that logical reasoning enhances cognitive development and equips learners to tackle complex

problems. Moreover, teachers emphasized that when logical analysis is integrated into the curriculum, learners demonstrate improved analytical skills, confirming the findings by Bransford et al (2000) who advocate for instructional strategies that promote reasoning and analysis.

Overall, the coherence between findings and existing literature suggests a vital need of understanding among educators and learners regarding the significance of logical analysis in facilitating meaningful learning experience.

5.2.2. Problem-Solving Strategies

The responses reveal a positive correlation between problem-solving strategies and academic performance. Headteachers (88.9%) and teachers (79.5%) agree that problem-solving strategies contribute to learner success. Pupils also endorse problem-solving, with 79.5% agreeing that these strategies contribute positively to their studying effectiveness. The consistency across respondent categories highlights the importance of problem-solving in achieving academic success (Jonassen, 2000; Hmelo-Silver, 2004). Jonassen (2000) stresses that problem-solving is a critical thinking skill essential for learning, while Hmelo-Silver (2004) emphasizes its role in developing expertise.

The findings also highlight a unanimous belief among Headteachers need for support from teachers and a positive outlook from pupils about the effectiveness of problem-solving strategies in learning. All Headteachers acknowledged that incorporating problem-solving activities leads to enhanced academic outcome, a view echoed by teachers who reported observing increased engagement and motivation among their learners during such activities. Literature by Jonassen (1997) supports these observations, emphasizing the impact of problem-based learning on learner engagement and cognitive growth. Similarly, Reshick (1987) notes that problem-solving fosters a higher level of critical thinking skills, essential real-world applications. However, the variability in learner responses of the challenges in problem-solving indicates the need for more differentiated instruction that caters to varying levels of confidence and skill in individual learners. This reflects the ongoing discourse in educational literature regarding the necessity of tailoring problem-solving approaches to meet diverse learner needs (Hattle, 2009).

5.2.3. Inferring Concepts

The findings demonstrate a strong correlation between inferring concepts and academic performance. Headteachers (100%) and teachers (90.8%) recognize the importance of inferring concepts in learning. Pupils also agree, with 90.8% believing that inferring concepts assists in their learning. The alignment across respondent categories emphasizes the significance of inferencing in academic success (Waltz et al., 2013; Cromley & Azevedo, 2007). Waltz et al. (2013) highlight the importance of inferencing in critical thinking, while Cromley and Azevedo (2007) emphasize its role in reading comprehension and learning.

Still responses regarding the teaching and learning of inference skills revealed strong recognition from both teachers and Headteacher about the importance of inferencing in curricula, reflecting existing research that identifies such skills as core to reading comprehension and knowledge application (Ragharan & Glaser, 1995) while Headteachers largely supported the notion that teaching inferring concepts is crucial for academic success, some teachers expressed challenges in effectively implementing strategies that promote these skills. This echoes findings from the National Reading Panel (2000), which highlighted shortcomings in teachers' training regarding inferencing instruction. Encouragingly, pupils indicated that when inferencing strategies are employed in learning contexts, they significantly enhance comprehension. There is an evident consensus on the necessity for more targeted training of teachers to refine their skills in fostering inferencing abilities, which is vital for developing deeper cognitive skills among learners.

5.2.4. Correlation to Academic Performance

The responses across all objectives and respondent categories indicate a strong correlation between critical thinking skills (logical analysis, problem-solving strategies, and inferring concepts) and academic performance. The consistency in responses underscores the importance of these skills in achieving academic success (Dewey, 1933; Ennis, 1962). Dewey (1933)

emphasizes the significance of critical thinking in education, while Ennis (1962) highlights its role in developing intelligent behaviour.

By analyzing the responses across the three categories of respondents, this study highlights the significance of critical thinking skills in education and their correlation to academic performance. The findings provide valuable insights for educators to inform evidence-based practices that support pupils' academic success.

5.3 Conclusion

This study investigated the perceptions of Headteachers, teachers, and pupils on the importance of critical thinking skills (logical analysis, problem-solving strategies, and inferring concepts) in education. The findings indicate a strong correlation between these skills and academic performance, highlighting their significance in achieving academic success.

The findings also distinctly illustrate the intertwined roles of logical analysis, problem solving and inferring concepts in academic achievement. The consensus on the importance of these competencies across all groups reinforces their critical role in shaping effective learning experiences. However, the variations in responses especially in areas such as inferencing and problem solving point to significant opportunities for improvement and professional development within the educational framework. The study's results align with existing literature, emphasizing the importance of critical thinking skills in education.

5.4 Recommendations

Based on the analysis of data and its relation to existing literature, the following recommendations are made:-

Educators should prioritize the development of critical thinking skills (logical analysis, problem-solving strategies, and inferring concepts) in the curriculum. This would promote a consistent foundation for developing critical thinking skills.

Teachers should employ instructional strategies that promote critical thinking, such as inquiry-based learning and problem-solving activities. This will motivate learners to embrace critical thinking skills.

Headteachers should provide professional development opportunities for teachers to enhance their understanding and teaching of critical thinking skills.

Pupils should be encouraged to engage in critical thinking activities, such as debates, discussions, and reflective journaling.

Assessment and feedback. Educational institutions should assess and evaluate the effectiveness of critical thinking skills programs by developing assessment tools that evaluate learners' competency in logical analysis, problem solving and inferencing, offering constructive feedback that aligns with learning goals. This could motivate learners to engage deeply with the material.

Parental engagement. Encourage parental involvement in promoting logical and problem solving skills at home, which can reinforce what is taught in school and create a holistic support system for learners.

5.5 Areas of Further Research

To build on the findings presented, future research should explore.

Investigate the impact of critical thinking skills on academic performance in different educational contexts.

Explore the relationship between critical thinking skills and other educational outcomes, such as creativity and motivation.

Develop and evaluate interventions aimed at enhancing critical thinking skills in pupils.

Investigate the role of technology in promoting critical thinking skills in education.

Examine the relationship between critical thinking skills and real-world applications, such as workforce readiness and civic engagement.

Investigate the effectiveness of specific teacher training programs targeting logical reasoning and evaluations to measure their impact on teaching practices and learner outcomes.

Explore how different subjects integrate these skills and their effects on learner engagement and learning outcomes which could inform best practices.

By addressing these areas, future research can further enlighten the significance of critical thinking skills in education and inform evidence-based practices to support pupils' academic success.

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APPENDICES

APPENDIX A: ROAD MAP

1 st – 30 th May, 2024	-	Collecting data
1 st – 30 th June, 2024	-	Organizing data
1 st – 31 st July, 2024	-	Printing and binding
20 th August, 2024	-	Submission of final report

APPENDIX B: BUDGET SCHEDULE

S/N	Item	Qty	Unit cost	Amount
1.	Photocopying paper	reams	5,000	5,000
2.	Pens	6	00	8,000
3.	Writing pad		0,000	0,000
4.	Secretarial services			0,000
5.	Binding	books	0,000	2,000
6.	Photocopying	5		4,000
7.	Transport			0,000
	Total			42,000

APPENDIX C: INTERVIEW GUIDE FOR PUPILS

Dear Pupil,

This interview guide is designed and intended to collect pupil's views about critical thinking skills of primary school pupils in Eastern Division of Tororo Municipal Council. You are kindly requested to complete all the questions provided.

Age Sex Class

1. I believe that using logical thinking helps me do better in my school work.
A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐
D. Strongly agree ☐ E. Not sure ☐
2. Logical reasoning helps me understand challenging concepts in my school work.
A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐
D. Strongly agree ☐ E. Not sure ☐
3. My teachers encourage us to think logically when solving problems.
A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐
D. Strongly agree ☐ E. Not sure ☐
4. When faced with difficult tasks, I always try to come up with a plan to solve them.
A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐
D. Strongly agree ☐ E. Not sure ☐

5. I use problem-solving strategies taught in class to solve academic challenges.
 A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐
 D. Strongly agree ☐ E. Not sure ☐
6. Problem solving strategies have helped me improve my grades at school.
 A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐
 D. Strongly agree ☐ E. Not sure ☐
7. Making inferences helps me understand lessons better. A. Strongly disagree ☐
 B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐ E. Not sure ☐
8. My teachers help us learn how to make inferences from things we study. Not sure ☐
 A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
9. Being able to infer concepts contributes to my academic success. A. Strongly disagree ☐
 B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐ E. Not sure ☐

Thank you for taking time to complete this interview guide. Your input is valuable to us.

APPENDIX D: QUESTIONNAIRES FOR TEACHERS

Dear Teacher,

I am Wagabo Juliet pursuing Bachelors Degree in Education Primary in Busitema University. I am requesting you to kindly provide your insights based on your observation and interactions with learners by completing this questionnaire. Your response will help us understand the current state of learners' critical thinking abilities.

1. Learners who demonstrate strong logical analysis skills tend to perform better academically. A. Strongly disagree ☐ B. Disagree ☐
 C. Agree ☐ D. Strongly agree ☐
2. I encourage learners to analyze information logically during lessons.
 A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
3. Learners who analyze information logically are better at drawing conclusions from their studies. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
4. Pupils who use effective problem solving strategies typically achieve higher grades.
 A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
5. I incorporate problem solving activities in my lessons to enhance learner understanding.
 A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐

6. Pupils who engage in problem solving exercises are more confident in their academic abilities. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
7. Learners who are able to infer concepts from lessons tend to understand the material better. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
8. I promote the practice of my teaching methods. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
9. Learners ability to infer concepts contributes positively to their overall academic performance. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐

Thank you for completing and providing valuable insights into your observation and practices related to critical thinking skills among learners. Your responses will remain anonymous and confidential.

APPENDIX E: QUESTIONNAIRES FOR HEADTEACHERS

Dear Headteacher,

I am Wagabo Juliet pursuing Bachelors Degree in Education Primary in Busitema University. Thank you for participating in this survey which seeks to understand your views on critical thinking in relation to academic performance in Eastern Division primary schools. Your input is valuable and will help in improving educational practices. Kindly provide your responses by ticking the applicable boxes or filling in where relevant.

1. Learners who exhibit strong logical analysis skills tend to achieve higher academic performance across grades. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
2. Our school curriculum effectively promotes logical analysis skills among learners. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
3. Teachers in our school emphasize the importance of logical reasoning in their teaching methods. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
4. Implementing problem solving activities in the classroom leads to better academic outcomes for learners. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐

5. Our school encourages teachers to integrate problem solving strategies into their lesson plans. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
6. Pupils who engage in problem solving tasks demonstrate increased confidence in their academic abilities. A. Strongly disagree ☐ B. Disagree ☐
C. Agree ☐ D. Strongly agree ☐
7. Pupils ability to infer concepts is crucial to their understanding and mastery of academic subject. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
8. Our teachers actively promote inference and critical thinking in their instructional strategies. A. Strongly disagree ☐ B. Disagree ☐ C. Agree ☐ D. Strongly agree ☐
9. There is positive correlation between learners' inference skills and their overall academic performance in our school. A. Strongly disagree ☐ B. Disagree ☐
C. Agree ☐ D. Strongly agree ☐

Thank you for your participation in this survey. Your feedback is greatly valued in advancing educational practices.

A map of Tororo District showing Sub-counties