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Influence of Learner's Level of Cognitive Abilities on the choice Teaching Methods used in Early childhood Development and primary Education in Mount Elgon Sub-County

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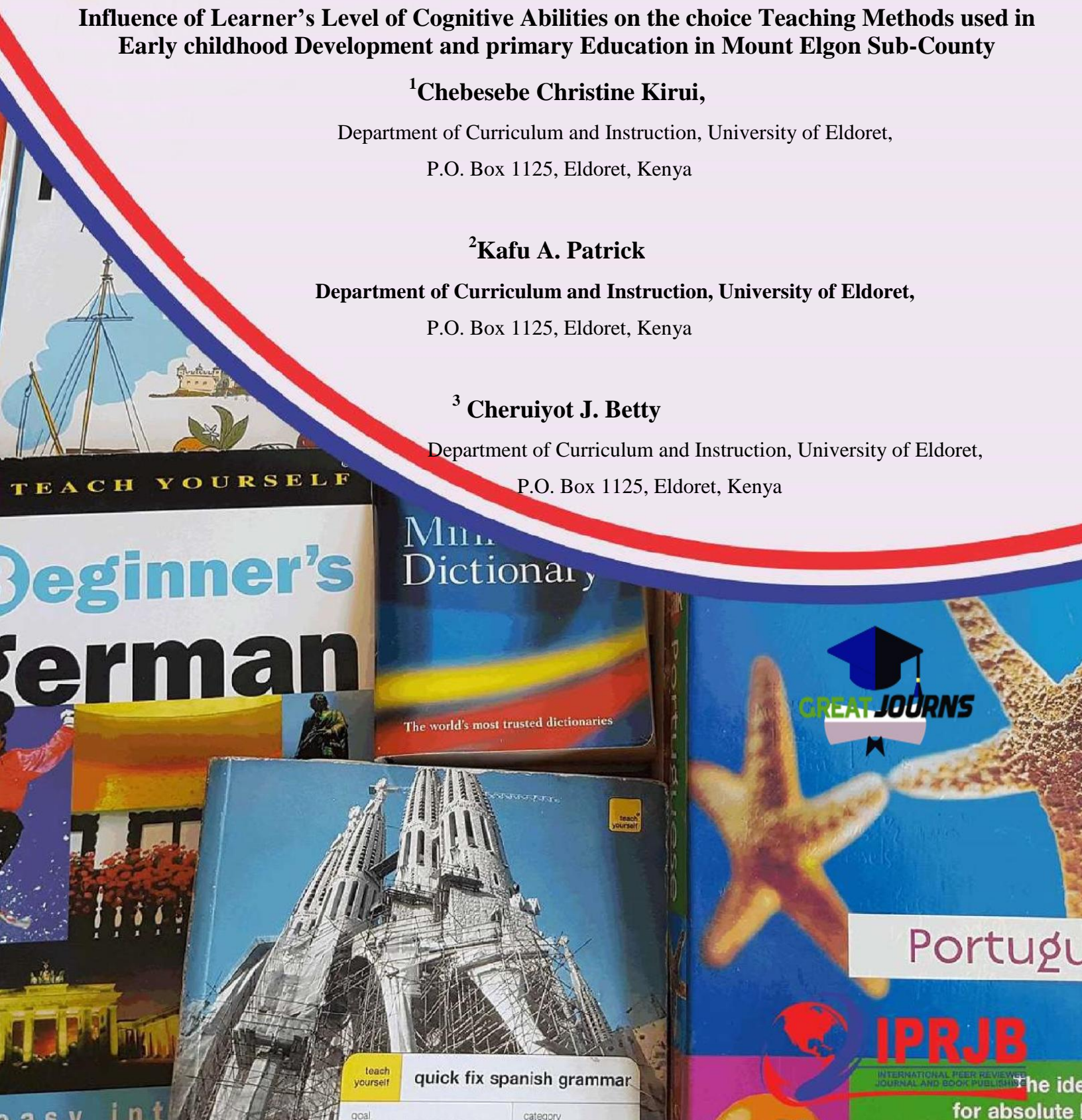
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ABSTRACT

This study investigates the influence of learners' cognitive abilities on the selection of teaching methods employed in early childhood development (ECD) and primary education within Mount Elgon Sub-County. Recognizing that diverse cognitive capabilities among young learners can significantly impact their engagement and learning outcomes, the research seeks to identify how educators adapt their instructional strategies to meet the varying needs of their students. A mixed-methods approach was utilized, combining quantitative surveys distributed to ECD and primary education teachers with qualitative interviews to gather deeper insights into their pedagogical practices. Findings indicate that teachers often adjust their methodologies based on the cognitive profiles of their students, implementing differentiated instruction, active learning techniques, and play-based approaches to enhance learning experiences. Additionally, the study reveals that educators face challenges, such as limited resources and large class sizes, which can impede their ability to tailor teaching methods effectively. The implications of this research stress the importance of training educators to recognize and accommodate diverse cognitive abilities in their teaching strategies, ultimately aiming to improve educational outcomes for all learners. This research contributes to the broader discourse on effective pedagogical practices in early childhood and primary education, emphasizing the critical role of understanding cognitive development in shaping teaching methodologies.

Keywords: cognitive abilities, teaching methods, early childhood education, primary education, Mount Elgon Sub-County, differentiated instruction.

1.0 INTRODUCTION

The early years of education are pivotal in shaping a child's cognitive, emotional, and social development. Understanding the influence of cognitive abilities on the choice of teaching methods is critical for educators aiming to foster optimal learning environments, particularly in regions such as Mount Elgon Sub-County, where diverse educational practices and learner backgrounds exist. This study seeks to explore the intricate relationship between students' cognitive abilities and the pedagogical approaches implemented by educators in early childhood development (ECD) and primary education settings. Cognitive abilities, which encompass skills such as problem-solving, reasoning, and memory, play a vital role in how children engage with educational content. Research suggests that different teaching methods, including play-based learning, direct instruction, and inquiry-based approaches, can significantly impact children's learning trajectories. However, the choice of these methods is often contingent upon the cognitive readiness of the learners, which varies widely in any classroom setting. This variability presents a unique challenge for educators, particularly in resource-constrained environments like those found in Mount Elgon Sub-County. In this context, it is essential to examine how teachers adapt their instructional strategies based on the cognitive profiles of their students. Understanding these dynamics can illuminate the effectiveness of various teaching methods, offering insights into how educators can best meet diverse learning needs. Furthermore, it can contribute to professional development initiatives aimed at equipping teachers with the skills necessary to assess and respond to the cognitive abilities of their learners. This journal will

present findings from a comprehensive study conducted in Mount Elgon Sub-County, exploring the interplay between learners' cognitive abilities and the pedagogical choices made by educators. Through qualitative and quantitative methods, we will uncover trends and implications that not only enhance pedagogical practices but also support the academic achievement and holistic development of young learners. By shedding light on this critical area of educational research, we aim to contribute to the evolving discourse on effective teaching strategies in early childhood and primary education.

1.1 Background of the Study

The background of the study on the influence of learners' cognitive abilities on the choice of teaching methods used in early childhood development and primary education reflects a complex interplay of global, African, regional, and East African perspectives. From a global perspective, educational theorists emphasize the importance of tailoring teaching approaches to accommodate varying cognitive abilities in learners. Research indicates that diverse cognitive profiles, including emotional, intellectual, and social dimensions, necessitate differentiated instructional strategies. The increasing recognition of inclusive education globally underscores the need to understand how cognitive abilities influence pedagogical choices, ensuring that all learners have equitable opportunities for development.

In the African context, educational systems are facing unique challenges, characterized by resource constraints, diverse cultural backgrounds, and varying educational policies across different countries. The significance of understanding cognitive abilities is critical as many African nations strive to improve educational outcomes and achieve universal access to quality education. Studies have demonstrated that teachers' awareness of cognitive variations among learners can significantly impact the effectiveness of teaching methodologies employed, leading to improved engagement and learning outcomes. As such, there is a pressing need to contextualize educational practices to reflect the realities faced by African students, which includes diverse cognitive capabilities.

At the regional level, East Africa presents a distinctive educational landscape marked by rapid socio-economic changes and educational reforms aimed at improving early childhood development and primary education. The interplay between traditional teaching methods and modern pedagogical techniques is particularly pronounced in this region, where many educators struggle to adapt their teaching styles to better fit the cognitive profiles of their students. Research has shown that fostering a child-centered approach, which responds to individual cognitive abilities, can enhance learning experiences. However, regional disparities in teacher training, curriculum implementation, and educational infrastructure complicate this process, necessitating localized strategies that promote effective teaching according to cognitive diversity.

Focusing specifically on the Mount Elgon Sub-County context, this study aims to bridge the gap between theory and practice by examining how educators perceive and implement teaching methods that align with the cognitive abilities of young learners. The findings could contribute to a more nuanced understanding of teaching dynamics in early childhood and primary education settings, thus equipping educators with the knowledge to create inclusive and responsive learning environments. By exploring this relationship, the study seeks to inform policy and practice at

multiple levels—local, regional, and national—ultimately aiming to enhance educational outcomes for children in Mount Elgon and beyond.

1.2 Objectives of the study

- i. To investigate how different levels of cognitive abilities among learners in early childhood education influence the selection of teaching methods implemented by educators in Mount Elgon Sub-County.
- ii. To identify specific teaching strategies favored by educators in Mount Elgon Sub-County for learners with varying cognitive abilities and to assess the impact of these strategies on student engagement and learning outcomes.
- iii. To examine how teachers in Mount Elgon Sub-County adapt their instructional approaches to accommodate the diverse cognitive abilities of learners in primary education and to identify the challenges they face in this process.

1.3 Research Questions

- i. How do different levels of cognitive abilities among learners in early childhood education influence the selection of teaching methods implemented by educators in Mount Elgon Sub-County?
- ii. What specific teaching strategies are favored by educators in Mount Elgon Sub-County for learners with varying cognitive abilities, and how do these strategies impact student engagement and learning outcomes?
- iii. In what ways do teachers in Mount Elgon Sub-County adapt their instructional approaches to accommodate the diverse cognitive abilities of learners in primary education, and what challenges do they face in this

11. LITERATURE OF RELATED LITERATURE

2.1 Influence cognitive abilities among learners in early childhood education on the selection of teaching methods implemented by educators.

Research suggests that cognitive abilities significantly affect the choice of teaching methods adopted by educators, particularly in early childhood education. Studies indicate that educators who recognize diverse cognitive profiles among their learners are more likely to employ differentiated instructional strategies tailored to meet varied developmental needs (Dixon et al., 2020). This differentiation can manifest through structured play, guided discovery, and collaborative learning environments designed to buoy engagement and comprehension among learners at different cognitive levels (Fisher et al., 2019). An analysis of teaching practices in various contexts highlights that teachers who employ versatile instructional approaches are better equipped to foster a supportive learning atmosphere that considers individual cognitive capabilities (Kumar et al., 2021). This trend is observed cross-culturally, suggesting that educators in Mount Elgon Sub-County, much like their global counterparts, may adapt their teaching methods dynamically depending on students' cognitive readiness (Jansen, 2022).

2.2 Specific teaching strategies are favored by educators in Mount Elgon Sub-County for learners with varying cognitive abilities, and how do these strategies impact student engagement and learning outcomes

The strategies favored by educators in diverse settings have been crucial in positively impacting student engagement and overall learning outcomes, particularly for learners with varied cognitive abilities. Recent research shows that strategies such as hands-on learning activities, cooperative learning, and individualized instruction play significant roles in enhancing engagement levels (Moyo & Chinyanganya, 2023). Additionally, contextually relevant teaching methods that consider local cultural practices can facilitate greater understanding and relevance for learners (Singh et al., 2021). For instance, educators utilizing storytelling and community involvement as part of their pedagogy have reported improved engagement and comprehension levels among students with differing cognitive skills (Akintayo et al., 2022). Understanding these dynamics within the Mount Elgon Sub-County context will provide insights into the effectiveness of selected strategies and their contribution to learner outcomes.

2.3 Ways do teachers in Mount Elgon Sub-County adapt their instructional approaches

Teachers in diverse educational environments, including those in Mount Elgon Sub-County, often face significant challenges when adapting their instructional approaches to account for varying cognitive abilities. Research indicates that while teachers strive to implement inclusive teaching practices tailored to cognitive diversity, systemic barriers such as inadequate training, limited resources, and large class sizes often impede their efforts (Mugisha et al., 2024). Furthermore, studies highlight that many educators utilize formative assessment tools to gauge cognitive levels and adapt their approaches accordingly, yet face difficulties in consistently applying these adaptations across diverse student populations (Okwakol, 2023). The necessity of continuous professional development programs has been emphasized to better equip educators to handle the complexities of cognitive diversity effectively (Njiru, 2021). As educators navigate these challenges in Mount Elgon Sub-County, their experiences reflect broader trends in East Africa, where similar issues are prevalent (Niyizigama, 2022).

III. METHODOLOGY

The research methodology for the study on the influence of learners' cognitive abilities on the choice of teaching methods utilized in early childhood development and primary education in Mount Elgon Sub-County was grounded in a pragmatist research philosophy. This philosophical approach was selected to facilitate the integration of both quantitative and qualitative research methods, as advocated by Zukauskas, Vveinhardt, and Andriukaitiene (2018). The quantitative aspect involved the collection and analysis of numerical data to identify patterns and relationships between learners' cognitive abilities and the teaching methods employed by educators. Surveys and standardized assessments were administered to measure cognitive abilities, while questionnaires were distributed to gather information on the teaching strategies adopted by teachers. Concurrently, qualitative methods were employed to gain deeper insights into the experiences and perspectives of educators regarding their choice of teaching methods in relation to learners' cognitive profiles. This involved conducting semi-structured interviews and focus group discussions with teachers to explore their reasoning and personal experiences in

adapting their teaching approaches. By employing this mixed-methods design, the study aimed to provide a comprehensive understanding of the interplay between cognitive abilities and instructional methods, ultimately enhancing educational practices in the region. The significance of the regression coefficients was tested at the 5% significant level. Interview responses were analyzed by extracting recurrent themes across the head teachers.

IV. RESULTS AND DISCUSSION

4.1 Teachers' background characteristics

Teachers' background characteristics, such as age, gender, and experience, can potentially influence their behavior, attitudes, and practices in the classroom. These variables may act as confounding factors when analyzing the impact of advanced media resources on instruction. Research has reported the influence of background characteristics on teachers' levels of advanced media resource use (Choi et al., 2018; Kurga, 2014). Teachers' background characteristics also provide contextual information. For instance, age distribution can help researchers determine whether younger or older teachers are more likely to use advanced media in instruction. Gender distribution may reveal gender-based disparities in technology adoption or teaching practices.

4.2 Influence of Cognitive Abilities on Teaching Methods

Regarding the research question on how different levels of cognitive abilities among learners influence the selection of teaching methods, findings indicated a clear correlation between cognitive ability levels and educators' methodological choices. Educators in Mount Elgon Sub-County reported that learners with higher cognitive abilities often thrived under methods that promoted critical thinking and problem-solving, such as project-based learning and inquiry-based approaches. Conversely, students with lower cognitive abilities benefited from more structured and direct instructional methods, including explicit teaching and repetition. This differentiation underscores the necessity for educators to assess cognitive ability levels accurately to tailor their teaching strategies effectively, ensuring that each learner receives the support suited to their unique needs.

4.3 Preferred Teaching Strategies and Their Impact

The second research question focused on specific teaching strategies favored by educators for learners with varying cognitive abilities and the corresponding impact on engagement and learning outcomes. The study found that educators favored hands-on activities and interactive learning experiences for younger learners or those with lower cognitive capabilities, such as play-based learning and group work. These methods enhanced engagement among these learners, fostering collaboration and social skills development. Notably, strategies such as differentiated instruction were particularly effective in catering to learners with diverse cognitive profiles. For instance, while some students engaged in guided reading sessions tailored to their capabilities, others were assigned independent tasks that aligned with their skills. The positive impact of such strategies on student engagement and academic performance was evident, as

educators noted improved motivation and retention of knowledge across varying cognitive ability groups.

4.4 Influence of instructional approaches on teaching methods

In exploring how teachers in Mount Elgon Sub-County adapt their instructional approaches to accommodate diverse cognitive abilities and the challenges faced in doing so, the findings revealed a proactive but often resource-limited environment. Teachers reported employing a variety of scaffolding techniques and adaptive learning tools aimed at meeting diverse learner needs. However, challenges such as large class sizes, insufficient resources, and inadequate training on differentiated instruction significantly hindered their ability to implement these strategies effectively. The lack of access to special educational resources and training further compounded the challenge, leaving some teachers feeling ill-equipped to address the needs of all learners. Despite these hurdles, many educators demonstrated resilience and a commitment to professional growth by seeking out collaborative methods, including peer observations and sharing best practices, to enhance their instructional approaches.

In conclusion, the study highlights the influence of cognitive abilities on teaching methods in early childhood development and primary education. It underscores the importance of differentiation in teaching strategies and the need for ongoing support for educators to meet the diverse needs of learners in Mount Elgon Sub-County effectively. These findings advocate for targeted professional development and resource allocation to empower teachers in their efforts to foster inclusive and effective learning environments.

V.SYMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

This study aimed to examine the influence of learners' cognitive abilities on the selection of teaching methods used in early childhood development and primary education in Mount Elgon Sub-County. Various research questions were posed to gauge the interplay between cognitive abilities and pedagogical choices. The findings reveal that educators in this region adapt their methods to accommodate the diverse cognitive landscapes among their students. This conclusion synthesizes the core findings from each research question and recommends actionable strategies for educators, policymakers, and stakeholders involved in early childhood and primary education in Mount Elgon Sub-County.

5.2 Conclusion

The first research question explored how different levels of cognitive abilities among learners influence the selection of teaching methods by educators. The findings indicated that educators are acutely aware of the varying cognitive strengths and weaknesses present in their classrooms. In instances where learners demonstrate higher cognitive abilities, educators often implement more complex pedagogical techniques, such as inquiry-based learning and project-based approaches. Conversely, for learners with lower cognitive abilities, educators tend to utilize more structured and direct teaching methods, such as explicit instruction and scaffolding. This differentiation is crucial, as it recognizes that learners engage with material based on their

cognitive processing capabilities. The educators' awareness and adaptation to these differences are critical in fostering an environment conducive to learning.

The second research question delved into the specific teaching strategies favored by educators for learners with varying cognitive abilities and the resultant impact on student engagement and learning outcomes. The study revealed a clear preference for interactive and hands-on learning experiences, particularly for learners with moderate to high cognitive abilities. Strategies such as cooperative learning and group discussions were highlighted as particularly effective in promoting engagement. For learners with lower cognitive skills, visual aids, repetitive exercises, and individualized instruction were predominantly utilized. These approaches not only cater to varying cognitive levels but also significantly improve student engagement and learning outcomes. Engaged students tend to perform better academically, indicating that tailoring teaching methods to cognitive abilities can enhance educational effectiveness.

The final research question investigated how teachers adapt their instructional approaches to accommodate diverse cognitive abilities and the challenges they encounter. The findings showed that teachers employ a range of strategies, including differentiated instruction and formative assessments, to gauge and respond to cognitive differences. However, several challenges emerged, most notably the lack of adequate training in differentiated instruction techniques, limited resources, and large class sizes that make individual attention difficult. Many educators expressed a desire for more professional development opportunities to enhance their skills in addressing cognitive diversity effectively. Moreover, resource limitations often hinder the implementation of varied instructional resources that could cater to differing cognitive needs, such as adaptive technologies and learning materials.

5.3 Recommendations

In examining the influence of learners' cognitive abilities on teaching methods employed in early childhood development and primary education in Mount Elgon Sub-County, several essential findings have emerged regarding the interplay between cognitive levels, teaching strategies, and educators' adaptability. These factors are crucial for improving educational practices and ensuring effective teaching and learning outcomes in the region.

Different levels of cognitive abilities among learners significantly influence the selection of teaching methods used by educators. The research indicates that teachers often assess students' cognitive capacities to tailor their instructional approaches. For instance, educators recognize that children with higher cognitive abilities tend to benefit from more complex, inquiry-based learning strategies that encourage critical thinking and exploration. In contrast, learners with lower cognitive abilities may struggle with such methods and hence may require more structured and guided strategies, such as direct instruction and repetitive practice, to facilitate their understanding. Consequently, this differentiation leads to the use of varied teaching methods that align with learners' cognitive skills, underscoring the need for teachers to possess a comprehensive understanding of their students' abilities to optimize learning experiences effectively.

The specific teaching strategies employed by educators in Mount Elgon Sub-County display a remarkable variance based on learners' cognitive abilities, impacting student engagement and learning outcomes significantly. The study reveals that educators favor interactive and hands-on learning experiences for students exhibiting moderate to high cognitive abilities. For instance, project-based learning, group discussions, and exploratory activities are commonly utilized to foster engagement among these learners. However, for those with lower cognitive abilities, strategies such as scaffolded instruction and the use of visual aids are prevalent. These approaches aim to build on basic skills and ensure comprehension before advancing to more complex concepts, ultimately enhancing engagement levels and providing appropriate challenges. The correlation between the cognitive ability level, teaching strategy, and engagement levels highlights the necessity of an adaptive teaching framework that accommodates learners' diverse educational needs.

Furthermore, the adaptations made by teachers to instructional approaches reflect a keen awareness of the diversity in cognitive abilities among learners in primary education. Educators in Mount Elgon Sub-County employ various methods to cater to these differences, including differentiated instruction, flexible groupings, and individualized lesson plans. These adaptations aim to provide appropriate learning opportunities for all students, ensuring that those who may require additional support receive the necessary attention. However, the research also identifies significant challenges faced by educators in this endeavor. Insufficient resources, limited professional development opportunities, and large class sizes hinder teachers' abilities to implement these diverse instructional strategies effectively. Additionally, varying levels of training and experience among educators can lead to inconsistencies in instructional quality, further complicating the effective accommodation of learners' cognitive differences.

Based on the findings from this investigation, several recommendations arise. First, it is imperative for educational stakeholders in Mount Elgon Sub-County to prioritize ongoing training and professional development for teachers focused on cognitive development and differentiated instruction strategies. Equipping educators with the skills to assess and respond to varying cognitive abilities will empower them to tailor their teaching methods effectively, enhancing learning outcomes for all students. Additionally, investment in teaching resources, such as instructional materials and technology, can support diverse instructional strategies and provide engaging learning experiences tailored to students' needs.

Moreover, implementing smaller class sizes or providing additional support staff can facilitate more individualized attention for learners, particularly those with lower cognitive abilities, allowing educators to better accommodate their diverse learning needs. Collaboration among teachers to share best practices and resources can also foster an environment of support and continuous improvement in teaching methodology. Lastly, building strong partnerships with parents and the community can serve as a vital resource, providing insight into students' learning styles and cognitive abilities while fostering an inclusive educational atmosphere.

In conclusion, the influence of learners' cognitive abilities on the selection of teaching methods in early childhood development and primary education is undeniable. By recognizing and addressing the unique needs of students based on their cognitive levels, educators in Mount Elgon Sub-County can enhance educational practices and improve learning outcomes. With

targeted support, ongoing professional development, and adaptive instructional strategies, the region can work toward creating a more inclusive and effective educational system.

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