UNIVERSITY OF EDUCATION, WINNEBA

PARENTAL SOCIO-ECONOMIC BACKGROUND IN FOSTERING NUMERACY ACTIVITIES IN KINDERGARTEN LEARNERS IN SHAMA CIRCUIT

HALIMATU HAMID JALLO

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HALIMATU HAMID JALLO

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DECLARATION

Student's Declaration

I, **HALIMATU HAMID JALLO**, hereby declare that this work is the result of my personal effort and an original report of the study except references to other people's work, which has been duly cited and acknowledged; no part of this work has been produced and presented for a degree in this university or elsewhere.

Signature:……..……

Date:……

Supervisor's Declaration

I hereby declare that the preparation and presentation of this study has been supervised by me in accordance with the guidelines of the supervision of long essays laid down by the University of Education, Winneba.

Name: DR. ADAM AWINI

Signature:……..……

Date:……

DEDICATION

To the Jallo and Diallo families, especially Amadou Bailo Diallo, Abdullah Diallo, and Hussainatu Diallo.

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ABSTRACT

This study examined the effect of parental socio-economic status on the development of kindergarten children's numeracy activities in the Shama Circuit of Ghana. Following Bronfenbrenner's Ecological Systems Theory and the interpretivist paradigm, the study employed a qualitative exploratory case study approach to examine how parental financial experiences, educational attainment, occupation, and perceived social status affect children's early development of numeracy. Information was gathered from 12 parents who were purposively selected across different socio-economic statuses via semi-structured interviews. Thematic analysis indicated that increased socio-economic status in the form of more income, education, and jobs with flexible timings led to more parental participation in numeracy activities as a result of enhanced access to resources and confidence in helping children learn. Conversely, restricted resources and reduced education restricted learning material availability and reduced active involvement. In addition, parents' perception of social status impacted their motivation and confidence in being able to enable numeracy development. The study concludes that socio-economic disparities significantly influence early numeracy performance and require specific interventions, parent education initiatives, and equitable resource distribution to bridge the gap. The findings have vital implications for education policy and practice in developing inclusive and equitable early childhood education in Ghana.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Early childhood numeracy development is a crucial foundation of academic success and cognitive growth. During these early years, children acquire basic mathematics skills such as counting, recognition of patterns, comprehension of quantities, and simple arithmetic problem-solving. These skills are not just vital for future academic achievement but also for overall cognitive development, affecting learning across all subject domains. Numeracy skills proficiency underpins attentional capacities, fixes memory, and builds problem-solving capacities, which are significant predictors of academic as well as real-life success (Hodgen et al., 2018).

The role played by parents in the development of numeracy cannot be overstated because their socio-economic status largely dictates the quality of provision and support that they can provide to their children. Income, level of education, and type of occupation are influential determinants that shape the home learning environment, which also influences the development of numeracy skills in young children. For instance, parents with more economic resources are able to afford a variety of learning materials such as books, educational games, and technology that create a rich environment for the learning of numeracy (Bonifacci et al., 2021). Less resourced families, however, may not be able to have these kinds of resources on hand, which creates disparities in children's access to numeracy-related activities. This financial disparity has a critical part to play in children's acquisition of numeracy skills, particularly in settings where resources are scarce. In addition to finance, the educational level of parents also plays an important part in determining whether or not

parents will be in a position to engage in numeracy activities with their children. More educated parents are more likely to engage confidently in activities like counting, sorting, and games involving mathematics, thereby supporting their children's development of numeracy. Such parents are more likely to be aware of best education practice and more likely to provide structured learning activities. Less well-educated parents may lack the confidence or the resources to engage in such activities, and so their children are less likely to receive early exposure to numeracy.

Parental occupation significantly impacts the numeracy abilities of kindergarten students. Whether the parents' occupation is demanding or relatively less demanding in terms of hours and commitment highly depends on how much time parents can dedicate to the learning activities of their children. Less busy occupations with flexible work schedules lead to higher opportunities for such children to develop in the right way, with more numeracy-related involvement from parents. On the other hand, parents with more demanding professions that involve fixed working schedules frequently struggle to provide the requisite time for such engagement. In addition, the parents' jobs are directly associated with the parents' financial well-being, which has a direct influence on whether they can invest in study materials and learning resources that might contribute to developing the numeracy of their child. Therefore, the acknowledgement of the extent to which parents' time and resources are consumed by different occupations is essential to decide how and to what level they can be involved in imparting numeracy skills to children.

The attitudes of parents about supporting the progress of their children's numeracy also depend upon their awareness of social status. Parents who see themselves as belonging to a higher socio-economic group will be more likely to feel empowered and confident

in their ability to help their children educationally, including numeracy. They may feel that their socio-economic status makes them deserve superior resources and opportunities to enable their child to learn. In comparison, low socio-economic status parents are less confident or more uncertain about supporting their children's numeracy development, typically due to a lack of resources and minimal affordability. This is influenced by the broader socio-economic environment, which has a similarly shaping effect on the level of parental involvement in children's learning. The research regularly finds socio-economic factors such as income, education, and occupation to have uniform associations with early numeracy achievement. Poor children are typically susceptible to the absence of numeracy abilities and often suffer from poor grades, whose implication is high school dropouts. This is a common worldwide situation, where the continent of Africa is not exempt, as quality education remains a primary challenge. In Ghana, within groups like the Shama Circuit, socio-economic disparities are acute, with unpredictable earnings and long working hours in the informal sector limiting available finances for learning resources and free time that parents must spend with children on numeracy.

Against the backdrop of the diverse socio-economic landscape of the Shama Circuit, the current research sought to explore the various ways in which parental socio-economic status, as measured by financial experience, level of education, and occupation, impacts the acquisition of numeracy in kindergarten children. The findings aim to provide valuable insight into the challenges and opportunities present for advancing numeracy skills in young children, as well as informing targeted interventions and policy initiatives to ameliorate these challenges.

1.2 Statement of the Problem

In the Shama Circuit, where socio-economic levels vary widely, children from lower SES families often face challenges in developing strong numeracy skills due to limited access to numeracy-related resources, lower parental involvement, and socio-economic stressors that hinder educational progress. If unaddressed, these disparities could contribute to widening educational inequalities and limit the potential of children from disadvantaged backgrounds. This research would contribute to an understanding of how socio-economic factors influence early numeracy development, in the case of the Ghanaian context, and inform subsequent pedagogical practice aimed at reducing disparities and enhancing academic success for all students.

In the Shama Circuit of Ghana, early childhood numeracy development is influenced by various parental socio-economic factors. Despite the recognition of early numeracy as essential for academic success and cognitive growth, there remains a significant gap in understanding how specific parental financial experiences, education, occupation, and social status influence the numeracy skills of kindergarten learners in this circuit. While existing literature has highlighted a general correlation between socio-economic status (SES) and children's access to educational resources, there is a lack of in-depth exploration of the nuanced ways in which these factors shape early numeracy development. Additionally, research on how parental involvement in numeracy-related activities varies according to socio-economic backgrounds and how this involvement affects children's numeracy proficiency is limited. This issue is significant because numeracy skills developed in early childhood serve as the foundation for future academic achievement and overall cognitive development. As noted by Abella et al. (2024), early numeracy skills not only predict later academic success in mathematics

but also influence life skills such as financial literacy and problem-solving. Disparities in numeracy skills, driven by unequal access to resources and differences in parental involvement, may result in long-term educational disadvantages for children from lower socio-economic backgrounds.

Investigating this issue is crucial for understanding the root causes of numeracy disparities in the Shama Circuit. As Bonifacci et al. (2021) argued, socio-economic factors play a significant role in shaping children's educational outcomes, and early intervention is necessary to ensure that all children, regardless of their socio-economic background, have access to the resources and support they need to succeed. This study sought to examine the influence of parental financial experiences, educational background, occupation, and social status on kindergarten learners' numeracy skills. Understanding these dynamics can help inform strategies for improving parental involvement in children's education and promoting equitable access to numeracy resources, which are key to fostering academic success and closing the achievement gap.

Several studies have explored the relationship between socio-economic status and children's numeracy development. Research by Clerkin and Gilligan (2018) and Gubbins and Otero (2020) suggested that children from higher socio-economic backgrounds tend to have greater access to numeracy-related resources and parental involvement, positively influencing their numeracy skills. Similarly, studies in other parts of the world, such as the United States and parts of Africa, indicate that children from lower socio-economic backgrounds often face disadvantages in numeracy development due to limited access to educational resources and lower levels of parental

involvement (Ainscow, 2020; Nyaphisi, 2021). While these studies provide a general understanding of the relationship between SES and numeracy skills, they do not focus specifically on the Shama Circuit or explore the specific ways in which different socio-economic factors interact to influence early numeracy development.

Although existing research has established a broad link between socio-economic status and numeracy development, there is a gap in exploring the specific socio-economic factors that influence early numeracy skills in the Shama Circuit. The available literature does not provide a detailed analysis of how parental financial experiences, education, occupation, and social status affect children's numeracy development in this specific context. Additionally, there is a lack of research examining how parental involvement in numeracy-related activities varies across different socio-economic groups in the Shama Circuit and how this involvement affects children's numeracy skills. This study aimed to fill these gaps by providing a more nuanced understanding of the socio-economic factors influencing numeracy development in this region.

This research differs from previous studies by focusing specifically on the Shama Circuit in Ghana, which presents a unique socio-economic context. While existing studies have examined the general relationship between socio-economic status and numeracy development, this study aimed to delve deeper into how specific socio-economic factors, such as parental financial experiences, education, and occupation, affect the numeracy skills of kindergarten learners in this particular circuit. Moreover, this research sought to explore the role of parental involvement in numeracy activities and how it varies across different socio-economic groups, providing insights into how interventions can be tailored to address disparities in numeracy development. Unlike

previous studies, which tend to focus on broader regional or national trends, this study aimed to provide localized data that can inform targeted interventions in the Shama Circuit.

1.3 Purpose of the Study

The purpose of the study was to explore parental socio-economic background in fostering numeracy activities in kindergarten learners in Shama Circuit.

1.4 Objectives of the Study

The Objectives that guided the study were to:

1. Assess parental perception of the role of their social status in supporting numeracy skills in kindergarten learners, Shama Circuit.
2. Examine the influence of parental financial experience on the development of numeracy skills in kindergarten learners in the Shama Circuit.
3. Explore the influence of parental educational background on the numeracy development of their children in the Shama circuit.
4. Examine how parental occupation shapes the numeracy skills of kindergarten learners in the Shama circuit.

1.5 The following research questions directed the study.

The following research questions directed the study:

1. How do parents perceive the role of their social status in supporting their children's numeracy development in the Shama circuit?
2. How do parental financial experiences influence the development of numeracy skills in kindergarten learners in the Shama Circuit?

3. How does parents' educational background influence their engagement in numeracy activities with their kindergarten children in the Shama circuit?
4. How does parental occupation contribute to shaping the numeracy skills of kindergarten learners in Shama Circuit?

1.6 Significance of the Study

This study has significant implications for addressing educational disparities and informing early childhood education policies in the Shama Circuit. Examining the influence of parental socio-economic background on kindergarten numeracy skills, it highlights potential inequalities in educational opportunities. The research aims to empower teachers, parents, policymakers, and community members with insights into how socio-economic factors affect numeracy development. These findings can guide targeted interventions to ensure equitable learning experiences for all children.

Additionally, the study fills a gap in localized research, providing valuable insights for future educational initiatives to improve numeracy skills in the Shama Circuit and beyond. Ultimately, this research promotes equitable access to quality early childhood education, fostering better educational outcomes and societal well-being.

1.7 Delimitation of the study

The research specifically targeted parents of kindergarten learners in selected schools within the Shama Circuit. Additionally, the study was further delimited to parents whose children are currently enrolled in kindergarten in the 2024/2025 academic year. The study focused on key variables, namely parental income, educational background,

occupation, and social status, as they relate to the fostering of numeracy activities among kindergarten learners.

Data collection was conducted using an interview guide, focusing on the experiences, perceptions, and practices of parents in fostering numeracy activities. This methodological choice ensured that the study remained concentrated on the relevant group and time frame, limiting the potential for broader generalizations beyond this specific context.

1.8 Limitations

The study may be limited by the sample of participants chosen from the Shama Circuit, which may not represent the broader population of parents across different regions or socio-economic backgrounds. As a result, the findings may not be fully generalizable to other areas with varying socio-economic conditions or cultural contexts. Additionally, the sample size and the socio-economic diversity of parents in the study might influence the ability to draw broad conclusions about the overall influence of parental socio-economic background on fostering numeracy activities.

1.9 Operational Definitions of Terms

Fostering: refers to the act of encouraging, nurturing, or promoting the development of something. In educational and developmental contexts, it often means supporting the growth or learning of skills, values, or behaviours.

Socio-Economic: How an individual's or group's social standing (such as education, occupation, or social class) and economic status (such as income or wealth) influence their lifestyle, opportunities, and overall well-being.

Parenting: refers to the process of raising and nurturing children from infancy through adulthood.

Numeracy: The ability to understand and work with numbers effectively.

Kindergarten learners: Young children typically between the ages of 4 and 5 who attend kindergarten.

1.10 Organization of the Study

This research was divided into five sections. The first chapter comprises the introduction and gives background information about the study. It then addresses important research topics, including the problem statement, purpose of the study, research objectives, research questions, significance of the study, delimitation of the study, limitations, and how the various chapters of the work are organized. The literature review was covered in Chapter Two. It covered studies that were relevant to the research. The research methodology, comprising the population, instrumentation, sampling procedures and methodology, and research design, was described in chapter three. Along with the data gathering and analysis procedures, it also addressed ethical issues. Data presentation, analysis, and discussion were the focus of chapter four. The study's limitations were discussed in Chapter Five along with a summary of the results, conclusions, and suggestions for additional research.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.0. Introduction

This chapter presents a review of related literature on how the socio-economic background of parents fosters numeracy skills in kindergarten learners. The chapter was discussed under the following subheadings.

1. Theoretical framework.
2. Concept of early child education.
3. Concept of numeracy development.
4. Influence of Parental Financial Experience on Numeracy Skills
5. Influence of Parental Educational Background on Numeracy Development
6. Parental Occupations on Numeracy Skills
7. Parental Perception of Social Status and Numeracy Support
8. Summary of Literature Review

2.1 Ecological System Theory

Bronfenbrenner's Ecological Systems Theory provides a comprehensive framework for understanding the influences on children's development, emphasizing the dynamic interplay between various environmental factors. In the context of the study on parental socio-economic background and numeracy skills development among kindergarten learners in the Shama Circuit, this theory offers valuable insights into the complex interactions shaping children's numeracy abilities. By examining the microsystem, mesosystem, exosystem, macrosystem, and chronosystem, researchers can elucidate the convoluted pathways through which parental socio-economic status influences numeracy development among young learners.

2.1.1 Microsystem (immediate environment)

The microsystem, as a concept in ecological systems theory, underscores the significance of immediate environments in shaping children's development. It encompasses the intricate interactions within settings such as family, school, and peer groups, which exert profound influences on children's cognitive, social, and emotional growth. Within this framework, parental involvement emerges as a crucial determinant of children's mathematical abilities. Research, such as that conducted by Ghazali et al. (2021), underscores the pivotal role of parental engagement in activities that bolster numeracy skills. Parents, especially those from higher socio-economic backgrounds, tend to create more enriching home environments conducive to learning. This is characterized by access to educational resources and active participation in numeracy-related endeavors. Such engagement fosters a supportive atmosphere for children's numeracy development, laying a robust foundation for their mathematical competencies.

Flynn (2021) highlighted the correlation between socio-economic status and the quality of home environments. Parents with greater resources often provide more stimulating educational materials and opportunities, thereby enhancing their children's numeracy skills from an early age. The quality of early childhood education programs also significantly influences children's numeracy competencies, as observed in studies like that by Lange et al. (2022). The experiences children encounter in kindergarten, particularly within the Shama Circuit, have profound implications for their mathematical development. Effective early childhood education programs not only impart mathematical concepts but also cultivate a positive attitude towards numeracy, fostering a solid mathematical foundation crucial for future academic success. The microsystem, comprising family dynamics, educational settings, and peer interactions,

serves as a pivotal context for nurturing children's numeracy skills. Parental involvement, socio-economic status, and the quality of early childhood education programs within specific circuits collectively shape children's mathematical competencies, emphasizing the importance of holistic support systems in promoting optimal development.

2.1.2 Mesosystem (interactions between microsystems)

The mesosystem, a concept in Bronfenbrenner's ecological systems theory, emphasizes the interconnectedness of various microsystems in an individual's life. In the case of the Shama Circuit study, examining the relationship between the home environment and the kindergarten setting is crucial for understanding how these two microsystems influence children's numeracy development. Effective communication and collaboration between parents and educators play a pivotal role in creating a cohesive learning environment that fosters numeracy skills in young learners. Research by Johnston-Wilder et al. (2020) underscored the significance of such collaboration in promoting numeracy proficiency among children. When parents and educators work together, they can provide consistent support and reinforce numeracy concepts both at home and in the classroom, which enhances children's learning experiences.

However, it's important to acknowledge that not all families have equal access to resources or opportunities for involvement in their children's education. Disparities in parental involvement and support, particularly between socio-economic groups, can lead to differential outcomes in numeracy skills among kindergarten learners. Caro (2018) highlighted this issue, suggesting that children from disadvantaged backgrounds may face barriers to parental involvement, which can impact their numeracy development.

2.1.3 Exosystem (settings indirectly affecting development)

The exosystem, as conceptualized in ecological systems theory, extends beyond immediate environments to encompass broader societal and community influences on development. In the case of children's numeracy skill acquisition, factors within the exosystem play a pivotal role in shaping opportunities and outcomes.

Socio-economic factors represent a cornerstone of the exosystem's impact on numeracy development. Access to quality early childhood education programs and community resources is often stratified along socioeconomic lines. (Ovansa, 2017). Children from poor backgrounds may face barriers to accessing enriching educational experiences, such as preschool programs with well-trained teachers and stimulating learning environments. These disparities in access can contribute to divergent numeracy trajectories, with children from more affluent backgrounds often enjoying advantages in skill development (Sosu & Pimenta, 2023).

Moreover, governmental policies and economic conditions exert considerable influence within the exosystem. In the Shama Circuit, where numeracy development is under consideration, policies related to education funding, curriculum standards, and social welfare programs can profoundly affect the availability and quality of educational opportunities. Economic fluctuations may impact the funding allocated to education and social services, potentially exacerbating or alleviating disparities in access to resources.

2.1.4 Macrosystem (larger cultural context)

The macrosystem, within the framework of ecological systems theory, encompasses the overarching cultural and societal influences that shape development. In the context of children's numeracy development, the macrosystem plays a significant role in shaping

parental attitudes, beliefs, and behaviors regarding education and socio-economic disparities.

Cultural beliefs about education and numeracy, as well as societal attitudes towards socio-economic disparities, contribute to the formation of parental aspirations and investment in children's learning (Agasisti & Maragkou, 2023). In the Shama Circuit, where numeracy development is being considered, cultural values regarding the importance of education and the family's role in children's academic success are likely to influence parental involvement in numeracy-related activities. For instance, cultural norms may dictate the level of emphasis placed on academic achievement and the extent to which parents engage in activities such as reading with their children or practicing numeracy skills at home. Understanding the cultural context is essential for designing culturally responsive interventions that empower families from diverse socio-economic backgrounds to support their children's numeracy development effectively. Culturally responsive interventions acknowledge and respect the cultural values, beliefs, and practices of families, thereby enhancing their engagement and participation in educational activities (Bal, 2018). This may involve incorporating culturally relevant content into educational materials, providing opportunities for families to share their cultural experiences, and fostering partnerships between schools and community organizations that reflect the diversity of the population.

2.1.5 Chronosystem (historical changes over time)

The chronosystem recognizes the impact of historical changes and temporal factors on development. Changes in economic conditions, educational policies, and technological advancements over time shape the educational setting within the Shama Circuit (Odoom et al., 2018). Longitudinal studies examining the evolution of numeracy skills among kindergarten learners can provide valuable insights into the effects of historical

trends on children's mathematicsematical competencies (West, 2017). By considering historical changes over time, researchers can contextualize current findings and anticipate future trends in numeracy development among young learners in the Shama Circuit.

Bronfenbrenner's Ecological Systems Theory offers a comprehensive framework for understanding the intricate interplay between parental socio-economic background and numeracy skills development among kindergarten learners in the Shama Circuit. By examining the microsystem, mesosystem, exosystem, macrosystem, and chronosystem, researchers can identify the contextual factors influencing children's numeracy trajectories and inform targeted interventions to support equitable numeracy development for all children.

2.2 Concept of Early Child Education

Early childhood education (ECE) stands as a cornerstone in the developmental journey of every child, wielding profound influence over their lifelong learning trajectory and eventual achievements. The formative years, spanning from infancy through preschool age, represent a period of unparalleled growth and exploration, where the groundwork for future intellectual, emotional, and social capacities is meticulously laid. Within the expansive realm of ECE, a myriad of disciplines converges to unravel its intricate tapestry of influences, from the intricate workings of cognitive development to the nuanced dynamics of social-emotional learning.

As scholars from psychology, education, neuroscience, and beyond continue to probe the depths of early childhood education, a wealth of insights emerges, shedding light on the mechanisms that underpin children's growth and development. From the indispensable role of parental involvement to the transformative power of early

interventions, research collectively illuminates the holistic nature of this critical phase, offering the keys to unlocking the full potential of every child and propelling them toward a future imbued with knowledge, resilience, and boundless possibilities. In the realm of cognitive development, seminal scholars such as Piaget and Vygotsky have cast light on the pivotal role of early experiences. Piaget's pioneering work accentuates the significance of sensorimotor exploration in laying the foundation for cognitive growth (Piaget, 1952). His theory delineates how infants and toddlers interact with their environment, assimilating new information and constructing mental schemas to make sense of the world.

Complementing Piaget's framework, Vygotsky's sociocultural theory emphasizes the centrality of social interaction in cognitive development (Vygotsky, 1978). According to Vygotsky, children's cognitive processes are scaffolded through interactions with more knowledgeable individuals, such as parents, educators, and peers. Through collaborative activities and guided participation, children internalize cultural tools and concepts, advancing their cognitive abilities within a social context.

The convergence of Piaget and Vygotsky's perspectives underscores the complex nature of cognitive development, wherein sensorimotor exploration and social interactions synergistically shape children's cognitive growth. Their insights serve as foundational pillars in understanding how early experiences lay the groundwork for cognitive development, illuminating pathways for fostering optimal learning environments in early childhood education.

Social-emotional learning (SEL) is recognized as a cornerstone of early childhood education, fostering essential skills necessary for personal and interpersonal success. Scholars and practitioners alike emphasize the significance of nurturing emotional

intelligence and social competence from a young age. Approaches such as the Responsive Classroom and Montessori method prioritize creating environments where emotional safety and social bonds flourish (Lewis, 2024). These pedagogical approaches emphasize the cultivation of empathy, self-awareness, and effective communication, laying the groundwork for healthy relationships and positive social interactions.

Moreover, research suggests that integrating SEL into early childhood education yields numerous benefits for children's overall well-being and academic success. Programs that explicitly teach social-emotional skills have been associated with improved behavior, reduced aggression, and enhanced academic performance (Bierman & Sanders, 2021). By fostering a positive classroom climate where children feel valued, respected, and emotionally supported, SEL initiatives contribute to a conducive learning environment where children are more motivated and engaged in their educational experiences. Thus, the integration of SEL practices not only nurtures essential life skills but also lays a solid foundation for academic achievement and holistic development in early childhood.

Early childhood education (ECE) embraces a rich tapestry of pedagogical approaches, reflecting the diverse philosophies and methodologies aimed at nurturing young learners. Among these, the Reggio Emilia, Waldorf, and High/Scope methods stand out for their distinctive principles and practices. Reggio Emilia, originating in Italy, champions child-directed exploration and artistic expression as fundamental to the learning process (Parker & Thomsen, 2019). This approach prioritizes the child as an active participant in their education, fostering curiosity, creativity, and self-expression through hands-on experiences and collaborative projects.

In contrast, the Waldorf method, inspired by the teachings of Rudolf Steiner, emphasizes holistic development through storytelling, imaginative play, and artistic activities (Koca, 2022). Central to Waldorf education is the belief in nurturing the child's intellectual, emotional, and spiritual dimensions, fostering a deep connection to the natural world, and fostering a sense of wonder and reverence for life. Both approaches exemplify the diverse range of pedagogical philosophies within ECE, each offering unique perspectives on how best to support children's growth and development during these formative years.

Parental involvement is a potent factor in early childhood education, exerting a profound influence on children's outcomes across various domains. The research underscores the importance of collaborative partnerships between parents and educators, highlighting the transformative impact of their joint efforts on children's development (Robinson, 2017). Initiatives such as home visits and conferences serve as pivotal avenues for fostering cohesion between home and school environments, facilitating open communication, and building mutual trust and respect between parents and educators. By actively engaging parents in their child's educational journey, ECE programs not only strengthen the support system surrounding the child but also enhance the continuity of learning experiences across different contexts. Thus, parental involvement emerges as a cornerstone of effective early childhood education, with far-reaching implications for children's holistic development and academic success.

Early interventions, epitomized by programs like Head Start, play a vital role in addressing the needs of vulnerable children by providing comprehensive support during their formative years. These initiatives are designed to mitigate developmental risks and promote positive outcomes, particularly for children from disadvantaged backgrounds (Merçon-Vargas, et al, 2020). Research consistently underscores the

efficacy of early interventions in improving various aspects of children's development, including cognitive abilities, social-emotional skills, and academic achievement. By offering a range of services such as education, health care, nutrition, and family support, programs like Head Start aim to level the playing field for at-risk children, equipping them with the tools and resources necessary to succeed in school and beyond. Through targeted interventions and holistic support, early intervention programs strive to break the cycle of poverty and provide vulnerable children with the opportunity to thrive and reach their full potential.

Advancements in neuroscience have unveiled the profound impact of early experiences and relationships on the developing brain (Siegel, 2020). Research underscores that enriching experiences, including opportunities for exploration and hands-on learning, stimulate neural growth and foster cognitive development. Moreover, supportive relationships with caregivers and educators play a crucial role in providing emotional security and promoting healthy brain development. Responsive caregiving and positive interactions help regulate stress hormones and lay the groundwork for secure attachments, which are essential for emotional well-being and resilience. Together, these findings emphasize the critical importance of creating nurturing environments in early childhood education to optimize neural development and set the stage for lifelong learning and well-being.

Addressing equity and access in early childhood education (ECE) is paramount, especially considering disparities in availability across different demographics. Strategies to level the playing field encompass targeted investments, workforce development, and policy reforms (Bruszt & Langbein, 2020). Targeted investments allocate resources to underserved communities, ensuring access to high-quality ECE programs for all children regardless of socio-economic status. Workforce development

initiatives focus on training and supporting educators to deliver culturally responsive and inclusive practices, fostering environments that cater to diverse needs. Policy reforms aim to dismantle systemic barriers and promote equitable access to ECE services, advocating for legislation that prioritizes funding, standards, and accountability measures to uphold fairness and inclusivity in early childhood education. Through concerted efforts in these areas, stakeholders can work towards creating a more equitable and accessible ECE landscape, laying the foundation for positive educational outcomes and social mobility for all children.

In synthesis, literature on early childhood education advocates for holistic, equitable, and evidence-based approaches. By investing in quality ECE programs and fostering collaboration among stakeholders, society can nurture the potential of every child, paving the way for a brighter future.

2.3 Concept of numeracy development

Numeracy development is a lifelong journey marked by the gradual acquisition and refinement of mathematical skills and understanding. From early childhood through adulthood, individuals embark on this process, which extends beyond mastering basic arithmetic operations. As emphasized by Jain and Rogers (2019), numeracy development involves interpreting and analyzing numerical information in diverse contexts, fostering critical thinking and problem-solving abilities. It encompasses concepts like proportions, percentages, and probability, encouraging learners to develop a deep conceptual understanding rather than relying solely on memorization. This journey of numeracy development is dynamic, and continually evolving as individuals encounter increasingly complex mathematics challenges and adapt their skills to meet new demands.

Furthermore, numeracy development is influenced by social, cultural, and environmental factors, shaping individuals' mathematics experiences and opportunities (Beltrán-Grimm, 2024). Educational practices, familial influences, socioeconomic background, and access to resources all play significant roles in shaping the trajectory of numeracy development. Addressing these contextual factors is essential for promoting equitable opportunities for all learners to engage meaningfully in numeracy development and unlock their full mathematics potential. By nurturing numeracy skills from early childhood and throughout adulthood, educators and policymakers contribute to the cultivation of capable, adaptable individuals prepared to navigate the complexities of the modern world with confidence and competence.

The essence of numeracy development lies in mastering foundational skills, including counting, number recognition, and proficiency in basic mathematics operations like addition, subtraction, multiplication, and division (Westwood, 2021). These skills serve as the bedrock for understanding complex mathematics concepts and problem-solving. Counting provides the ability to quantify and sequence objects, while number recognition facilitates fluency in associating symbols with quantities, easing the transition to higher-level operations.

Mastering basic mathematics operations marks a critical milestone in numeracy development, empowering learners to combine, separate, scale, and distribute quantities (Ortiz et al., 2020). These foundational skills operate synergistically to propel numeracy development forward, with counting and number recognition forming the scaffold for basic operations, which, in turn, reinforce conceptual understanding and problem-solving abilities. By nurturing these foundational skills, educators lay a sturdy foundation for learners to build their mathematics knowledge and problem-solving capabilities, enabling them to confront real-world mathematics challenges with

confidence and competence. Importantly, numeracy development emphasizes conceptual understanding over rote memorization, encouraging learners to grasp the underlying principles and relationships within mathematics concepts (Clements, 2022). This conceptual understanding is essential for applying mathematics to real-world situations such as budgeting, measurement, data analysis, and decision-making.

Numeracy development is a continual process influenced by cultural and contextual elements (Gal et al., 2020). Factors such as educational practices, socioeconomic backgrounds, and access to resources play pivotal roles in shaping individuals' mathematics growth. Educational approaches that incorporate culturally relevant pedagogies can enhance students' engagement and understanding of mathematics concepts, acknowledging the diverse ways in which mathematics knowledge is constructed and applied within different cultural contexts. Additionally, addressing socioeconomic disparities and providing equitable access to resources, such as quality education and learning materials, is essential to mitigating inequalities in numeracy development and ensuring that all learners can thrive mathematically.

Numeracy development is not confined to the classroom but extends into the broader societal landscape, where cultural and contextual factors exert significant influence (Cheung et al., 2021). By recognizing and addressing disparities in educational practices, socioeconomic backgrounds, and resource access, educators can foster an environment that promotes equitable opportunities for all learners to develop their mathematics abilities and contribute meaningfully to society. In the digital age, technology plays a significant role in supporting numeracy development through interactive apps, simulations, and online tutorials (Westwood, 2021). These tools enhance engagement and understanding, facilitating mathematics exploration and problem-solving.

Furthermore, numeracy development intersects with a multitude of academic disciplines, spanning science, engineering, economics, and art (Greenstein & G. Nita, 2024). Acknowledging these interdisciplinary connections not only enhances learners' understanding of the practical applications of numeracy but also fosters a broader appreciation for its relevance across diverse domains. For instance, in science and engineering, numeracy skills are essential for analysing data, solving problems, and understanding complex phenomena (Hafni et al., 2020). In economics, numeracy enables individuals to interpret statistical information, make informed decisions, and analyze trends (Tout, 2020). Similarly, in art, numeracy plays a crucial role in geometric constructions, spatial reasoning, and the creation of visually appealing compositions (Nutov, 2021). By recognizing and leveraging these interdisciplinary connections, educators can enrich numeracy instruction and empower learners to transfer their mathematics skills across various contexts, ultimately fostering a more comprehensive and versatile approach to numeracy development.

Numeracy development equips individuals with the skills needed to make informed decisions, solve problems effectively, and actively participate in society (Abella et al., 2024). By prioritizing conceptual understanding, leveraging technology, and acknowledging interdisciplinary connections, educators and policymakers contribute to the cultivation of capable and adaptable citizens prepared to navigate the complexities of the modern world.

2.4 Influence of Parental Financial Experience on Numeracy Skills

Parental financial experience plays a significant role in fostering the numeracy skills of young learners, particularly in early childhood. Numeracy, as a fundamental component of early childhood education, is shaped by multiple factors, including the financial knowledge and practices of parents. Research shows that parents who are financially

literate often engage in mathematics discussions and activities with their children, leading to better numeracy outcomes.

Studies have consistently highlighted that financially literate parents tend to engage their children in more numeracy-related activities. For instance, Gaskin and McAllister (2018) found that parents with higher financial literacy levels are more likely to introduce their children to mathematics concepts through everyday activities such as budgeting, managing household expenses, and engaging in financial planning. These practical experiences allow children to apply mathematics concepts such as addition, subtraction, and multiplication in real-world settings, which reinforces their numeracy skills. Additionally, teaching children how to manage money and understand budgeting promotes not only mathematical skills but also critical thinking and decision-making abilities (Hastings et al., 2020).

The financial stability and resources of a family influence the opportunities available for children to develop numeracy skills. Families with a higher income are more likely to afford educational resources, such as books, educational toys, and extracurricular programs, that enhance numeracy development (Dearing et al., 2006). According to Jacob & Ludwig (2008). Improving educational outcomes for poor children. Children from wealthier families have better access to enriched learning environments, which contribute to higher levels of academic achievement, including numeracy. Financially stable parents can afford high-quality early childhood education, where numeracy skills are taught in a structured and systematic way, offering a robust foundation for future mathematics learning.

There is a growing body of evidence linking parental financial literacy to children's academic performance, particularly in mathematics. According to a study by Lusardi

and Mitchell (2014), parents with strong financial knowledge are more likely to pass on essential cognitive skills, including numeracy, to their children. Their research suggested that children whose parents had higher financial literacy levels scored better on mathematics tests, as the parents were more likely to engage in activities that promoted mathematics thinking. Additionally, these parents tend to emphasize the value of education, which in turn positively influences their children's academic attitudes and achievement (Perry & Morris, 2019).

Parental financial experience also impacts the level of involvement parents have in their children's education. Research by McWayne et al. (2016) indicated that parents from higher socioeconomic backgrounds are more likely to be actively involved in school activities, such as volunteering or attending parent-teacher meetings, which has been shown to positively influence children's academic success. Financially secure parents can also provide additional academic support, such as private tutoring, extracurricular mathematics programs, and access to specialized educational tools, which further enhance their children's numeracy development.

Conversely, families from lower-income backgrounds often face financial barriers that limit their ability to provide their children with the resources and support needed for numeracy development. According to Duncan et al. (2014), children from low-income families are at a higher risk of underdeveloped numeracy skills due to limited access to educational materials, structured early childhood education, and enrichment programs. The lack of financial resources restricts opportunities for parents to engage in numeracy-related activities with their children, further perpetuating the achievement gap in mathematics.

Numerous studies emphasize the connection between parental socioeconomic status (SES) and the development of numeracy skills in children. Socioeconomic status, often closely related to parental financial experience, has a profound impact on numeracy development. According to Elliott, (2019) children from higher-SES families perform better in early mathematics because they benefit from more stimulating learning environments, including access to educational resources and greater parental involvement. In contrast, children from lower-SES families may not receive the same level of support, leading to disparities in numeracy outcomes.

Parental financial experience significantly influences the numeracy skills of young learners. Financially literate and financially secure parents tend to create enriching environments that promote the development of numeracy skills through everyday financial activities, resource provision, and active involvement in their children's education. Conversely, low-income families face challenges that limit opportunities for numeracy development, contributing to disparities in academic achievement.

2.5 Impact of Parental Educational Background on Numeracy Development

Parents with higher levels of education are often more likely to understand the importance of early numeracy development and are more likely to engage their children in activities that support mathematics learning. For instance, parents with strong academic backgrounds are more likely to model problem-solving behaviours, engage in discussions about numbers, and provide enriching learning experiences at home, such as reading mathematics-related books or playing number-based games. According to research by Dearing et al. (2006), children whose parents have attained higher levels of education perform better academically, including in numeracy, as their parents are more equipped to recognize and nurture their children's cognitive development.

The educational background of parents not only impacts numeracy skills directly but also plays a vital role in the cognitive and language development of children, which are crucial for early mathematics learning. Research by O'Connor and McCartney (2007) found that children of parents with higher levels of education tend to have larger vocabularies and stronger cognitive skills, both of which are foundational to understanding mathematics concepts. A strong vocabulary helps children comprehend mathematics terms, symbols, and instructions, while advanced cognitive skills allow them to grasp abstract mathematics ideas. Thus, the intellectual environment provided by educated parents promotes both language and numeracy development, which are intertwined in the early stages of learning.

Parents with higher levels of education typically possess better problem-solving skills, which they pass on to their children through interactions and everyday experiences. As noted by Cheadle (2008), parents with higher educational attainment are better able to assist their children with homework, offer guidance on solving mathematics problems, and model effective problem-solving strategies. These interactions help children develop critical thinking and numeracy skills that extend beyond basic arithmetic. The active involvement of educated parents fosters a growth mindset in children, encouraging them to view challenges as opportunities for learning rather than as obstacles to be avoided (Siegler et al., 2019).

Parents with higher levels of education also tend to have higher educational expectations for their children, which positively affects academic performance, including numeracy development. According to Jeynes (2005), when parents have a strong educational background, they are more likely to value education and set higher academic standards for their children. These expectations translate into greater academic effort and achievement on the part of the children, as they internalize the

value placed on education by their parents. Parents' emphasis on academic success often extends to numeracy, with parents encouraging their children to excel in mathematics and supporting them in overcoming challenges they may face in learning mathematics concepts.

On the other hand, children from families where parents have lower levels of education may experience challenges in numeracy development. Moreover, lower levels of parental education are often associated with lower levels of academic support at home, which limits opportunities for children to develop their mathematics abilities. This can result in lower performance in school, particularly in subjects like mathematics that require strong foundational skills. Recognizing the impact of parental educational background on numeracy development has led to various interventions aimed at supporting families with lower levels of education. Programs designed to provide parental education and training in supporting children's learning, such as early literacy and numeracy programs, have been shown to positively influence children's academic outcomes. For example, research by Walker et al. (2011) found that parenting programs that focused on improving parents' educational skills helped boost children's cognitive abilities, including numeracy. By empowering parents with strategies to engage in their children's learning, these programs contribute to the overall improvement of children's numeracy skills.

The educational background of parents has a profound effect on the numeracy development of their children. Parents with higher levels of education tend to provide a stimulating academic environment, engage in enriching activities, and set high educational expectations that foster numeracy development. Conversely, children from families with lower educational attainment may face challenges in developing strong numeracy skills due to a lack of resources and support. Interventions that educate and

empower parents, particularly those with lower levels of education, can help bridge this gap and support children's numeracy development. By addressing these disparities, educators and policymakers can ensure that all children, regardless of their parents' educational background, have the opportunity to develop strong numeracy skills.

2.6 Parental Occupations on Numeracy Skills

Parental involvement in numeracy development is a multifaceted area of study that encompasses several key sub-strands. Within the literature, researchers have extensively explored the impact of parental engagement on children's mathematics abilities across various stages of development. During early childhood, parental involvement emerges as a critical factor in shaping children's numeracy skills, with research indicating profound impacts on their mathematics abilities later in life (Kong & Yasmin, 2022). Engaging in activities such as counting objects, playing number games, and fostering mathematics discussions with parents have been shown to significantly contribute to children's numeracy development (Clerkin & Gilligan, 2018). Moreover, they again ascertain that parents' attitudes toward mathematics play a pivotal role in this process; their confidence in teaching mathematics concepts and their positive outlook toward mathematics greatly influence their children's numeracy development. By actively participating in numeracy-related activities and fostering a supportive learning environment, parents can lay a strong foundation for their children's mathematics skills, providing them with valuable tools for academic success and lifelong learning.

2.7 Parental Perception of Social Status and Numeracy Support

The social status that parents perceive for themselves significantly affects how they proceed in supporting the development of numeracy in their children. It has been determined through research that how parents view their position in society, for

instance, their socioeconomic status, cultural belonging, and perceived social roles, is an essential element in ascertaining how they become involved in supporting their children's learning in numeracy. Parental attitudes toward social status can influence the types of education resources parents are able to provide, the support they give, and what they think about the value of numeracy for their children's academic and future success. The social status of parents is often connected with the extent and level of their involvement in their children's education. According to Lareau (2003), parents of higher socioeconomic status possess greater resources in terms of both time and money to be actively engaged in their children's education, including numeracy. These parents are more likely to provide their children with learning materials, after-school activities, and private tutoring, which have the potential to enhance their children's numeracy. On the other hand, parents from lower socioeconomic backgrounds may struggle to provide such resources due to financial constraints, potentially leading to less active engagement in their children's learning.

However, it’s important to recognize that social status does not solely depend on financial resources. According to Bourdieu's (1986) theory of cultural capital, parents from higher social statuses possess more "cultural capital," including knowledge, language, and networks that can be mobilized to support their children's learning development. For example, parents of higher social statuses are more likely to speak well with the teachers, look for learning opportunities, and offer good attitudes towards numeracy learning to their children. On the other hand, parents with lower social status might find these interactions harder to obtain due to a lack of cultural capital or time caused by working pressures.

Parents' perceptions of their own social status can influence their beliefs about the educational potential of their children and, therefore, their involvement with numeracy development. Evidence suggests that parents who consider themselves belonging to a higher social class have higher expectations of the performance of their children at school, including in mathematics (Lareau, 2003). These high expectations have the effect of leading to greater support for numeracy learning, like encouraging children to engage in mathematics activities, homework assistance, and providing access to mathematics resources. Conversely, parents who perceive themselves as belonging to a lower social class may have lower expectations of their children's academic success, and this may lead to less engagement with numeracy activities. Parents who come from lower socioeconomic backgrounds are sometimes less confident in their own role in supporting their children with mathematics, and this may be because they have had poor experiences with mathematics themselves when they were in school (Dowker, 2021). This lack of confidence can undermine their support and encouragement of numeracy development at home.

2.8 Home Numeracy Environment

The home numeracy environment plays a crucial role in influencing children's mathematics achievement, as evidenced by research findings (Zippert & Rittle-Johnson, 2020). When parents cultivate a rich mathematics environment at home, it significantly benefits their children's numeracy development (Levine et al., 2019). This includes activities such as reading numeracy-related books, integrating mathematics into daily routines, and providing access to numeracy-related materials. By immersing children in such an environment, parents not only reinforce mathematics concepts learned in school but also foster a deeper understanding and appreciation for

mathematics. This proactive approach to nurturing numeracy skills at home sets a strong foundation for children's mathematics proficiency, equipping them with essential tools for academic success and lifelong learning.

2.8.1 Parental Involvement in Schooling

Parental involvement in children's schooling is strongly linked to higher numeracy achievement, as highlighted by research findings (Boonk et al., 2018). Activities such as attending school events and assisting with homework are commonly recognized forms of parental engagement in education. However, it's essential to note that the quality of parental involvement matters significantly. Studies indicate that supportive and engaged parental involvement, characterized by collaborative interactions with teachers and active participation in school activities, yields greater benefits for children's numeracy development than passive involvement (Kisiang'ani, 2018). By establishing partnerships between parents and educators, fostering open communication channels, and actively participating in their children's educational journey, parents can effectively enhance their children's numeracy skills and overall academic success.

2.8.2 Parental Attitudes and Beliefs

Parents' attitudes towards mathematics and their beliefs regarding their mathematics abilities play a significant role in shaping their involvement in their children's numeracy development, as highlighted by Dowker (2021). Research indicates that parents with positive attitudes towards mathematics are more inclined to engage in numeracy-related activities with their children and cultivate a supportive learning environment (Weinstein, 2020). This positive outlook influences parents' willingness to participate in mathematical activities and impacts their approach to supporting their children's

numeracy learning. By fostering a mindset that values mathematics and embraces numeracy-related experiences, parents can effectively contribute to their children's mathematical development and academic success.

2.8.3 Cultural and Socioeconomic Factors

Cultural and socioeconomic factors exert a considerable influence on parental involvement in numeracy development, as underscored by Şengönül (2022). Although parents from diverse backgrounds universally value education, how they support their children's numeracy development can differ based on cultural norms and the resources accessible within their families (Tour, 2019). These factors can encompass various aspects, including cultural attitudes towards education, parental beliefs about the role of numeracy in their children's futures, and the availability of financial resources and educational opportunities within the family. Understanding these cultural and socioeconomic dynamics is essential for educators and policymakers aiming to design effective interventions and support systems that cater to the diverse needs of families and promote equitable access to numeracy education. By acknowledging and addressing these factors, stakeholders can work towards fostering inclusive environments that empower all children to excel in numeracy regardless of their cultural or socioeconomic background.

2.8.4 Cultural and Societal Attitudes towards Numeracy

Cultural attitudes towards numeracy and its significance can also impact the involvement of parents in numeracy development. In some cultures, there may be a greater focus given to literacy over numeracy, and therefore, parents will focus more on reading and writing abilities than on mathematics ability. Or, in cultures where numeracy is considered to be a prime skill for socioeconomic mobility, parents may

place a priority on their children's mathematics development, actively trying to find additional resources and activities for their children to develop their numeracy skills. Cultural attitudes concerning the importance of education can influence the support that parents provide for numeracy development. There may be greater social pressure on children to succeed academically in certain societies, which would result in greater parental interest in the education of their children. Parents may regard numeracy as being a key component of their children's future success and thus spend sufficient time and resources on the learning of these skills. On the other hand, in less educationally oriented societies, parents are less inclined to appreciate numeracy development even when they understand its importance (Vang, 2006).

For lower socioeconomic parents, notions of social status combine with material barriers in affecting their propensity to provide numeracy support. These obstacles may include fewer educational materials to use, less time to spend with their children due to work commitments, and fewer numeracy instructional strategies to be familiar with. According to Zippert and Rittle-Johnson (2020), such parents may have fewer opportunities to engage in numeracy activities with their children, which can negatively impact their children's numeracy development. In response to such challenges, there have been some initiatives targeting parents from lower socioeconomic backgrounds by providing them with strategies and resources to support their children's numeracy learning at home. These sessions aim to make parents believe in their own ability to contribute to numeracy and provide them with useful material, such as number games, books, and learning websites, which can be used to support their children's learning.

2.9 Summary of Literature Review

The literature considered provides a critical understanding of the nuanced factors influencing numeracy skill acquisition within early childhood education. Theoretical foundations of the study draw from developmental and socio-cultural theories, namely Vygotsky's Social Development Theory, which focuses on the importance of social interaction and domestic life in intellectual development, including numeracy. This gives the basis of understanding how parental involvement and socio-economic settings dictate early learning. Early childhood education is seen as a vital stage for establishing the foundations for a lifetime of learning, with the development of numeracy being an integral aspect. Literature identifies early experience of number concepts, problem-solving activities, and reasoning skills as the foundation for eventual academic success and intellectual development. The family context, influenced by parents' financial, educational, and professional status, is integral to the facilitation or constraint of this development.

Parental financial literacy is significant to numeracy competence. Affluent families are more likely to afford quality learning resources, private tutors, and study materials that put numeracy to the test. Economically constrained families, in contrast, are unable to provide such resources and limit the access of their children to learning. Similarly, parental education is an excellent predictor of children's educational performance. Educated parents are more likely to understand curricular demands, communicate well with teachers, and implement numeracy-supporting teaching approaches in the home. Parents' occupation also determines the level of engagement in the development of children's numeracy. Parents with non-routine occupations or less stressful jobs have more time to participate in learning activities with their children. Those who have

demanding and time-consuming jobs might be unable to give adequate support. In addition, perceptions of social status affect how parents perceive their involvement in their children's education. Parents who have a perception that they are in a more advantageous socio-economic status feel more secure and confident that they can provide for their children's learning. By contrast, parents perceiving lower status may end up disempowered or less capable of positive engagement with the numeracy learning of their children.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter describes the methods that were employed in the study. It discusses the philosophical paradigms, research approach, the research design, the population, and the sample of the study, as well as the sampling techniques that were used. It also describes the research instruments, data collection techniques, and procedures used in processing and analysing data collected from the field. The field experience of the researcher was also not left out under this topic.

3.1 Philosophical Positioning

This study was grounded in the interpretivist paradigm, which emphasizes understanding human experiences, interactions, and social contexts from the perspectives of those involved. Interpretivism, as a philosophical approach, recognizes that reality is subjective and socially constructed, differing across individuals and groups based on their unique cultural, social, and personal contexts (Creswell, 2014). The interpretivist paradigm was particularly suited for this study because it aimed to explore the nuanced relationship between parental socio-economic status and the development of numeracy skills among kindergarten learners in the Shama Circuit. The study sought to understand how socio-economic factors influenced parents' involvement in their children's education and how these dynamics shaped children's numeracy development.

Central to interpretivism is the belief that knowledge is co-constructed through interactions between the researcher and participants. Unlike positivist paradigms,

which seek to identify objective truths through measurable data, the interpretivist approach acknowledges the complexity and subjectivity of human experiences. As Cohen, Manion, and Morrison (2018) observed, interpretivist research seeks to uncover the meanings individuals ascribe to their experiences, emphasizing the importance of context and the interplay of various social, cultural, and economic factors. In this study, the interpretivist paradigm provided a framework for exploring the lived experiences of parents and educators in the Shama Circuit. By using qualitative methods such as interviews and focus group discussions, the research delved into participants' perceptions, attitudes, and practices related to numeracy development. For instance, understanding how parents from different socio-economic backgrounds perceived their role in supporting their children's learning required an approach that valued their unique perspectives. The interpretivist stance allowed the researcher to capture the richness and diversity of these experiences, moving beyond numerical data to understand the social realities shaping children's numeracy skills.

Literature supporting the use of the interpretivist paradigm in educational research highlights its effectiveness in uncovering deeper insights into complex social phenomena. Merriam and Tisdell (2016) argued that interpretivist research is particularly valuable in educational contexts because it prioritizes understanding the subjective experiences of learners, parents, and educators, which are often shaped by socio-cultural and economic factors. This paradigm aligns with Vygotsky's (1978) socio-cultural theory, which emphasizes the role of social interactions and cultural tools in shaping cognitive development. The interpretivist approach was instrumental in examining how parental socio-economic status influenced the availability of resources, parental involvement, and, ultimately, children's numeracy outcomes.

Furthermore, the interpretivist paradigm supports the idea that research findings are context-specific and cannot always be generalized to broader populations. This was particularly important for the study, as the Shama Circuit's unique socio-economic and cultural dynamics required an in-depth, localized understanding of the factors affecting early numeracy development. By grounding the research in the interpretivist paradigm, the study acknowledged the importance of context and aimed to provide insights that could inform targeted educational interventions in the circuit.

3.2 Research Approach

The research adopted a qualitative approach, which is well-suited for studies aiming to explore complex phenomena, understand human experiences, and delve deeply into specific social contexts. Qualitative approach prioritizes rich, descriptive data collected through methods such as interviews, observations, and focus group discussions, making it ideal for examining how socio-economic factors influence parental involvement and children's numeracy development in the Shama Circuit. Unlike quantitative approaches, which emphasize numerical data and statistical analysis, qualitative research seeks to capture the depth and complexity of participants' lived experiences, providing nuanced insights into their perceptions, beliefs, and practices (Creswell & Poth, 2018).

In this study, the qualitative approach allowed for a detailed exploration of the diverse socio-economic backgrounds of parents and how these factors shaped their involvement in their children's early numeracy education. Focusing on individual and group experiences, the approach facilitated a better understanding of how access to resources, parental education levels, and socio-economic challenges influenced numeracy development among kindergarten learners. Denzin and Lincoln (2011) emphasized that qualitative research is particularly valuable in educational studies, as it captures the voices of participants and highlights the contextual factors that shape their experiences.

The flexibility of the qualitative approach was another critical advantage in this study. It enabled the researcher to adapt the research process in response to emerging findings, allowing for a more iterative and dynamic exploration of the topic. For example, during interviews, participants could elaborate on unexpected themes, providing richer data that deepened the analysis. As Patton (2015) noted, this flexibility allows qualitative researchers to probe deeply into participants' perspectives and uncover insights that might be overlooked in more structured, quantitative methodologies.

The qualitative approach also aligns with the interpretivist paradigm that underpinned this study, as both prioritize understanding social realities from the perspectives of those involved. The approach facilitated an in-depth examination of how socio-economic factors influenced not just the availability of educational resources but also parents' attitudes and practices toward their children's numeracy education. For instance, exploring the lived experiences of parents revealed the emotional and practical challenges they faced, such as balancing work and home responsibilities or dealing with financial constraints that limited their ability to provide educational support.

Literature supports the use of qualitative approaches in studying educational and socio-economic issues. Merriam and Tisdell (2016) highlighted that qualitative research is particularly effective in uncovering the intricate relationships between social factors and educational outcomes, as it captures the voices and experiences of diverse stakeholders. Similarly, Yin (2018) emphasized that qualitative methods, such as case studies and interviews, are ideal for investigating real-world phenomena within their specific contexts, making them highly applicable to studies conducted in localized settings like the Shama Circuit.

Through the qualitative approach, this study also sought to contribute to the growing body of research advocating for context-specific educational interventions. By understanding the unique challenges and opportunities present in the Shama Circuit, the research aimed to provide actionable insights that could inform policies and programs tailored to the needs of kindergarten learners and their families. The findings underscored the importance of addressing socio-economic disparities in early childhood education and highlighted the critical role of parental involvement in promoting equitable learning outcomes.

3.2 Research Design

The research pursued an exploratory case study research design in investigating the influence of parents' socio-economic status on numeracy activities among kindergarteners in the Shama Circuit. An exploratory case study is best suited to address research questions that seek to understand how and why things occur, specifically in real-life educational settings where interacting variables exist (Yin, 2018). The approach allowed for close and in-depth examination of a specific environment, with a focus on the subtle ways in which parents' economic and social conditions shape their engagement with their children's early numeracy learning. A research design, according to Goldsmith (2021), is a strategic plan for mapping the collection, analysis, and interpretation of data. In the exploratory case study design, the researcher might construct a coherent and systematic exploration of the lived experiences and contextual conditions shaping numeracy activities with young children. Skarbek (2020) characterizes case studies as qualitative methods that investigate contemporary phenomena in their natural context, especially where phenomenon and context boundaries are not evidently clear. The exploratory character of the case study enabled

the researcher to explore in detail the complex interrelation between parents' socio-economic status and educational support activities in kindergarten. This is echoed by Thomas (2021), who says the strength of case studies is that they can explore and hold together the wholeness of the case in point, which was at the centre of this research.

Descriptive elements were also included in the exploratory case study design to gain detailed and systematic descriptions of the socio-economic situation of the participants and their involvement in their children's numeracy learning. As Priya (2021) confirms, descriptive research is essential in uncovering characteristics and patterns that characterize a particular issue. In this case, it was used to clarify the "what," "when," and "how" of parent involvement in numeracy education. The design also allowed the collection of rich qualitative data from interviews, observations, and document analysis. Having these different sources of evidence allowed the researcher to triangulate data, thereby enhancing the credibility and reliability of the findings (Cohen, Manion, & Morrison, 2018). This methodological flexibility is one of the characteristics of exploratory case studies, and therefore, they are appropriate to capture subjective experiences as much as objective realities. In line with Anderson's (2024) contention that case studies are instrumental in generating practical and context-specific knowledge, this study sought to provide findings that would be relevant not just to academic knowledge but to educational practice and policy as well. The exploratory case study design thus provided a valuable template for excavating the dynamics of parental socio-economic influence on early childhood numeracy development and laying the groundwork for subsequent research and intervention activities in similar contexts.

3.3 Study Area

The study was conducted in the Shama Circuit of the Shama District in the Western Region of Ghana. The circuit comprises both urban and semi-urban communities and is characterized by diverse socio-economic conditions. Residents of the Shama Circuit are engaged in a range of economic activities, including fishing, trading, farming, artisanal work, and public sector employment, which reflect varying income levels, educational backgrounds, and occupational demands among parents.

The area was selected because its varied socio-economic background provided a suitable and realistic context for examining how differences in parental income, educational attainment, occupation, and perceived social status influence the development of numeracy activities among kindergarten children. Additionally, the presence of both public and private basic schools within the circuit created an appropriate setting for exploring early childhood numeracy development across different household and school contexts, allowing the study to capture diverse parental experiences, resource availability, and patterns of involvement in children's numeracy learning.

3.4 Target Population of the Study

Population is the entire collection of subjects or items that meet under some criteria for research inclusion (Casteel & Bridier, 2021). Population has been defined by Kapur (2018) as the entire collection of all objects, subjects, or members meeting under a specified set of criteria. For this study, the population of interest in this research were parents of kindergarten pupils from three schools sampled within the Shama circuit, Western Region. These schools were selected due to their accessibility, diversity in socio-economic backgrounds, and their enthusiasm in early childhood education. The initial school, Nusra Islamic Basic School, provided four (4) parents for the research.

The second school, Shama Model Kindergarten (KG), provided six (6) parents. Lastly, the Shama Methodist School had the highest number of engaged parents at seven (7). Altogether, a total of seventeen (17) parents across the three schools were involved in the study. This was adequate for the intent of gathering diverse opinions on the impact of parental financial experience, educational level, occupation, and sense of social ranking on numeracy skill attainment among kindergarten students.

3.5 Sample and Sampling Technique

The research used purposive sampling among the parents in three schools that were selected in the Shama Circuit. Sampling is a fundamental element of research design, particularly in qualitative studies where the goal is to gather in-depth information from people with direct experience or knowledge related to the research topic. According to Andrade (2021), sampling involves selecting a representative subset or fraction of the population that best represents the entire population for the intent of gathering meaningful and credible information. Similarly, West (2016) defined a sample as a group of individuals, objects, or units drawn from a population for study and interpretation. Gorard (2013) also added that there is no single fixed sample size, regardless of study, that can be applied in every study; instead, the appropriate sample size depends on the nature, objective, and extent of the specific study, along with the type of population being dealt with.

The study utilized qualitative research design, and the corresponding sampling approach was therefore purposive sampling. More specifically, maximum variation sampling, a subtype of the purposive sampling technique, was the sampling strategy adopted in the research. Maximum variation sampling focuses on capturing extensive

points of view through diverse participants having respective characteristics tied to the topic of study. Here, the primary need for variation was socioeconomic status so that parents from various income groups could be recruited to ensure a deep understanding of how different levels of finance, education, and occupation influence numeracy development among kindergarten learners. Twelve (12) parents were purposively selected to participate in the study. Of these, six (6) parents belonged to low-income families, three (3) parents belonged to medium-income families, and the remaining three (3) parents belonged to high-income families. The selection of participants from these varied income levels was purposeful and was in accordance with the purpose of the study to explore diverse experiences and perceptions of parental roles in numeracy development at the early childhood level.

The justification for the use of purposive selection was based on the ability of participants to offer rich, relevant, and diverse information relevant to the research objectives. Secondly, the physical proximity of such participants to the research field in the Shama circuit facilitated the easy and feasible undertaking of face-to-face interviews, which are the bedrock of qualitative data collection. The study established inclusion criteria to guide the selection of participants who met specific requirements. Firstly, all participants were required to be parents or guardians of kindergarten children enrolled in one of the three participating schools within the Shama Circuit during the 2023/2024 academic year, to ensure that they had direct and recent involvement in their children's early numeracy experiences and could provide relevant, first-hand information on parental support for numeracy development.

3.6 Data Collection Instruments

The study employed a semi-structured interview guide as the main data collection instrument. The interview guide was designed to gather in-depth information on parents' socio-economic and educational backgrounds and how these factors influence their involvement in kindergarten children's numeracy activities. The guide began with questions on participants' background and demographic characteristics, providing contextual information about their roles as parents or guardians. It then explored parents' economic status, including household income levels, primary sources of income, and financial stability, to understand how economic resources shape access to numeracy learning materials and opportunities at home.

The interview guide also examined participants' educational attainment, focusing on their highest level of education and numeracy-related learning experiences, to assess how education influences parents' confidence and ability to support early numeracy development. In addition, questions relating to occupational characteristics were included to gather information on parents' types of work, job responsibilities, and working hours. This helped to identify potential work–family conflicts and how occupational demands affect the time and effort parents can dedicate to supporting their children's numeracy activities.

Furthermore, the guide included questions on parental involvement in numeracy activities, such as the types of numeracy practices used at home, the availability of learning materials, and the frequency of engagement. It also explored parents' perceptions of their social status and attitudes toward early numeracy, as these perceptions can influence motivation, confidence, and commitment to supporting

children's learning. Finally, the interview guide allowed participants to discuss the challenges they face and the support they require to effectively engage in their children's numeracy development. Overall, the interview guide provided a comprehensive framework for collecting rich and relevant data to support meaningful analysis of parental socio-economic influences on early numeracy development.

3.7 Ensuring Trustworthiness

In qualitative research, trustworthiness is essential for establishing the credibility, reliability, and overall quality of the findings. Unlike quantitative studies that rely on statistical measures of validity and reliability, qualitative research employs specific criteria to ensure rigor and authenticity. The trustworthiness of this study was assessed using four key criteria: Credibility, transferability, dependability, and confirmability, each of which plays a unique role in enhancing the study's validity and reliability.

Credibility

Credibility refers to the extent to which the findings of a study are believable, authentic, and trustworthy (Lincoln & Guba, 1985; Shenton, 2004). It establishes how accurately the findings represent participants' real experiences and perspectives (Bryman, 2012). Patton (2002) emphasized that, in qualitative research, the researcher's role as the primary research instrument plays a critical role in enhancing credibility. In this study, credibility was achieved through frequent and prolonged engagement with participants via semi-structured interviews and informal follow-up discussions (Gasson, 2004; Morrow, 2005).

The interview items were constructed and refined during the interview sessions through an iterative and flexible process. An initial set of guiding questions was developed based on the study objectives and relevant literature. During the interviews, participants'

responses informed the adaptation, rephrasing, and expansion of interview items, allowing the researcher to probe emerging issues, seek clarification, and explore unanticipated but relevant themes. Follow-up questions were asked to deepen understanding and ensure that participants' meanings were accurately captured. This flexible approach ensured that the interview items remained grounded in participants' lived experiences rather than being rigidly predetermined.

In addition, effective questioning and attentive listening skills were used to elicit rich, in-depth data and promote accurate communication (Labuschagne, 2003). To further enhance credibility, participants' responses were clarified during and after the interviews through member checking, where key ideas were confirmed with participants to ensure accurate interpretation. Minor corrections were subsequently made to the interview transcripts based on participants' feedback. At the end of the data collection and analysis process, the study successfully addressed the research aims it set out to achieve.

Transferability

Transferability refers to the extent to which the findings of a study can be applied or generalized to other contexts or groups. While qualitative research does not aim for broad generalization in the same way as quantitative studies, it emphasizes the provision of rich, detailed descriptions that allow others to determine whether the findings are relevant to their settings (Lincoln & Guba, 1985). In this study, thick descriptions were used to document the research context, participants' socio-economic backgrounds, and the specific dynamics influencing numeracy development in the Shama Circuit.

Shenton (2004) emphasized that providing detailed contextual information is vital for transferability, as it enables readers to assess the applicability of findings to their situations. To achieve this, the study detailed the socio-economic characteristics of the Shama Circuit, including its educational infrastructure, parental involvement practices, and resource availability. Thoroughly describing the research process and participants' lived experiences, the study ensured that other researchers or practitioners could identify parallels between the study context and their own.

Dependability

Dependability refers to the consistency and stability of research findings over time and under similar conditions. It ensures that if the study were repeated in the same context, with the same participants and methods, comparable results would be obtained (Lincoln & Guba, 1985). To achieve dependability, this study employed a transparent and systematic research process, meticulously documenting data collection, analysis procedures, and decision-making steps.

Dependability was further enhanced by maintaining an audit trail, a comprehensive record of all research activities, including interview protocols, field notes, and data coding schemes. Merriam and Tisdell (2016) argued that audit trails are critical for demonstrating dependability, as they provide a clear account of how the study unfolded, allowing others to evaluate its methodological rigor. Additionally, peer debriefing was employed to ensure that interpretations of the data were consistent and unbiased. Engaging with colleagues and experts in qualitative research allowed the researcher to refine the study design and validate the analytical process.

Confirmability

Confirmability addresses the objectivity of the research findings, ensuring that they are grounded in the data rather than shaped by the researcher's biases or preconceptions. It involves demonstrating that the findings are a true reflection of the participants' perspectives and experiences (Patton, 2015). In this study, confirmability was achieved by using triangulation, reflexivity, and a systematic approach to data analysis.

Triangulation involved collecting data from multiple sources, such as interviews, observations, and document reviews, to ensure that the findings were well-rounded and supported by diverse evidence. This approach aligns with Shenton's (2004) recommendation for using multiple data sources to strengthen confirmability and minimize the influence of researcher subjectivity.

Reflexivity, the process of critically examining one's assumptions, biases, and influence on the research, was another key strategy for ensuring confirmability. The researcher maintained a reflexive journal throughout the study, documenting thoughts, decisions, and potential biases that could affect the data interpretation. Berger (2015) highlighted the importance of reflexivity in qualitative research, noting that it helps researchers remain self-aware and transparent in their analysis.

3.8 Data Collection Procedure

Data collection procedures refer to the systematic process of gathering information or data for research purposes. These procedures outline the steps and methods used to obtain relevant data that addresses the research questions or objectives (Cresswell, 2013). For this study, the researcher took an introductory letter approving the research work from the Department of Early Childhood Education, University of Education, Winneba, to seek permission from the management of the three schools. The researcher

then conducted the research at the expense of approval from the right authorities. On the first day, the researcher visited the schools involved to brief the teachers on the purpose of the research, and when parents started arriving with their wards, the teachers guided the researcher to meet parents and took their telephone numbers. The researcher then booked an appointment with each of the sampled parents at their convenience. Accessing parents from Nursa Islamic School was not difficult compared to the other schools because two of the parents were selling sachet water and soft drinks on the school premises, with the last interviewee being a teacher in the school. For the other interviewee from Methodist School and Shama Model KG, the interview sessions were held in their houses and places of work, respectively. Data was collected through recordings using an iPhone 11 Pro Max. Both English and Fante were the two main media used in collecting the data since some of the parents preferred the local dialect, while others were comfortable with English.

3.9 Data Analysis

Data analysis is a process that involves inspecting, cleaning, coding, and transforming data to change it into information that can be useful to serve its purpose (Babbie, 2020). For this study, thematic analysis was employed because it allowed for an in-depth exploration of the lived experiences and perspectives of the parents, regarding the influence of parental socio-economic background in fostering numeracy skills in kindergarteners in the Shama Circuit. The data obtained from the respondents were transcribed, edited, and analyzed using thematic analysis, which involved organizing, narrating, summarizing, and interpreting the participants' responses to identify recurring patterns and key themes. To enrich the quality of the analysis, the researcher at certain points quoted verbatim (word for word) the responses from some of the interviewees. This is because qualitative data analysis is well grounded in an inductive

approach that builds a theory from empirical data collected during the research process. These data are not abstracted into a numerical representation; they maintain congruence with the form in which they were collected (Kothari, 2004).

3.10 Ethical Considerations

Ethical approval for this study was obtained from the Ghana Education Service to ensure that all research activities adhered to ethical standards. Before data collection, formal permission was also sought from school administrators, including heads of institutions and department heads at the selected schools. This ensured institutional support and compliance with organizational policies. To protect the rights and autonomy of participants, informed consent was a key focus of the study. Participants were fully briefed on the purpose, objectives, and procedures of the research before any interviews were conducted. It was emphasized that participation was entirely voluntary, and they could choose not to participate without facing any negative repercussions. Additionally, participants were informed that they could decline to answer any specific question or terminate the interview at any point if they felt uncomfortable.

The process of obtaining consent involved a clear and detailed explanation of the study to ensure that the participant understood their involvement. Once participants had received all necessary information, they were asked for their consent before proceeding with the interview. Participants' decisions were respected throughout the research process. Two individuals declined to participate, and their refusal was fully acknowledged and respected by the principal investigator, with no attempt made to influence or pressure them to take part in the study.

CHAPTER FOUR

ANALYSIS AND DISCUSSION

4.0 Introduction

This chapter presents the data from the interviews conducted with participants in this study, analyzed through thematic analysis. The analysis focused on understanding the meaning of the data within the context of the Shama Circuit. The process of analysing the data involved two stages. The first stage was where the data from the interviews was transcribed manually. The second stage presented the analysed transcription in tune with the research questions, which are:

1. How do parents perceive the role of their social status in supporting their numeracy development, Shama Circuit?
2. How do parental financial experiences influence the development of numeracy skills in Kindergarteners in Shama Circuit?
3. How does parental educational background influence their engagement in numeracy activities with their kindergarten children, Shama Circuit?
4. How do parental occupations contribute to shaping the numeracy skills of kindergarteners, Shama Circuit?

4.1 Presentation of Participant's Demographics

Demographic characteristics of the participants in the study offer additional information on factors such as age, gender, marital status, level of education, and occupation of the participants.

Demographic Factor	Category	Percentage (%)
Age	25-30 years	10%
	31-35 years	30%
	36-40 years	40%
	41-45 years	20%
Gender	Male	30%
	Female	70%
Marital Status	Married	90%
	Single	10%
Level of Education	Certificate	40%
	Diploma	40%
	Degree	20%
Occupation	Teachers	40%
	Business Owners	30%
	Entrepreneurs	20%
	Nurses	10%

Field work, 2025

Demographic characteristics of the participants in the study, offering additional information on factors such as age, gender, marital status, level of education, and occupation of the participants. The data is critical in putting into perspective how parent-related factors influence kindergarten students' learning of numeracy skills. Participant ages range from 25 to 45 years, with 40% of them falling within the 36-40 years age bracket. This is a pointer to the fact that a very large proportion of the participants fall within their middle-career or older stages in life, quite possibly with greater economic and social security. The next largest is the 31-35 segment, at 40% of the participants. Following this is the 41-45 segment, at 10%, with the smallest number

of participants in the 25-30 segment, at 10%. The age profile reflects a mixed group of perspectives and experiences in the participants that might influence how they provide guidance on the formation of numeracy skills in children.

From the gender perspective, most of the participants are females with 70% representation compared to 30% male representation. This also signifies traditional roles for gender during early education, with the mothers having an active stake in the child's educational upbringing. It also suggests that women may be more engaged in the processes that shape numeracy in young children, perhaps offering richer data on how parental involvement, particularly by mothers, affects learning. Marital status shows that 90% of the participants are married, while 10% are single. This large number of married participants can be seen to suggest that children in these families are more likely to receive the benefit of two parental contributions, and thus could influence resources and support for developing numeracy skills. Married parents could work together to share costs and decision-making, and hence influence the quality of education resources provided to their children. Conversely, the solo participant might capture another type of dynamic when considering the availability of resources, such that limitations can result from single-parent home difficulties.

In terms of educational qualifications, 40% of the respondents possess a certificate qualification, and the same percentage (40%) possess a diploma. Degree holders constitute the smallest group with 20%. The diversity of educational qualifications reflected different levels of awareness and realization of the importance of numeracy skills in early childhood education. Individuals with higher educational qualifications, such as degrees, might be more concerned with academic development, such as numeracy, since they are exposed to more educational theories and practices. Individuals with lower educational qualifications might be more concerned with daily

life skills. Parents' educational background can have a direct influence on how they respond to their children's learning, the character of the materials they employ, and the strategies they follow to build numeracy skills.

Occupationally, 40% are teachers, implying a majority in the sample have a direct professional stake in education. This is followed by 30% of the participants in business activities, which may point towards a focus on entrepreneurial ability and hands-on financial management. Entrepreneurs, nurses, and other occupational groups each constituted 10% of the study participants. The reason why there are so many teachers is that more of the participants might have a better understanding of the education system and the importance of early numeracy. However, business-owning parents or other employers might stress numeracy in more practical or financial terms, as far as it is concerned with everyday life and future economic well-being.

4.2 Research Question One: How do parents perceive the roles of their social status in supporting their children's numeracy skills?

Parents' social status influences their access to resources and opportunities that support their children's numeracy development. Parents with higher social status often have more financial means, educational networks, and numeracy-related materials, while those with lower social status may face limited access to such support. This question examines how parents' social standing within their communities affects how they support numeracy skills in kindergarten children.

4.2.1 Theme 1: Access to Educational Resources Based on Social Status

This theme explored how parents' social status influences their access to resources and information about numeracy development. Higher social status often provides greater access to educational resources, workshops, and networks that emphasize the

importance of numeracy in early childhood. These parents are more likely to invest in educational materials, tutoring, or extracurricular programs to support their children's numeracy development.

A parent with high level of education commented:

As someone who works in education, I'm aware of the importance of numeracy, so I make sure to provide my child with relevant educational apps, books, and even enroll my child in mathematics related programs outside of school to develop my child's numeracy skills.

Another parent with high level of education commented:

Living in a more affluent neighbourhood, I have access to various educational workshops and resources. I try to attend those that focus on early childhood development, particularly numeracy skills. This keeps me informed on how to support my child's numeracy learning.

Another parent with low education said:

Because I have a strong network of friends who are educators, I often get recommendations for books, games, and apps that can help with numeracy. I believe that early exposure to these resources is key to numeracy development.

One parent with high level of education also said:

I am able to invest in additional resources like extra classes for my child, especially in mathematics. I think it's crucial to give my child as many learning opportunities as possible for my child to excel.

Another Parent with low education level commented:

I'm lucky that my new work provides me with access to some resources, like workshops and teaching materials for Kindergarteners I can share this with my child to boost my child's learning, particularly in numeracy.

These responses highlight the influence of social status on access to educational resources and how parents with higher social standing are more likely to have the knowledge, connections, and financial means to invest in numeracy development tools, programs, and guidance for their children.

4.2.2 Theme 2: Parental Engagement in Numeracy Activities Based on Social Status

This theme examined how parents' social status influences their level of engagement in numeracy activities with their children. Parents with higher social status have more time, resources, and knowledge to actively engage in activities that promote numeracy development. Conversely, those with lower social status face barriers such as time constraints, lack of access to resources, or limited knowledge about how to support their children's numeracy learning.

A participant with a high social status said:

Because I have a stable job and more flexibility in my schedule, I can regularly take my child through mathematics exercises, like counting objects around the house or playing mathematics related games for my child's numeracy development.

Another participant with low social status said:

My work is demanding, and I don't always have time for structured learning activities at home. However, the little I do sometimes, I try to include numeracy in our daily routine, like asking my child to help with cooking measurements or counting things in the yard.

Another parent with high social status said:

I have been able to afford a tutor and extracurricular activities, this allows me to provide consistent support for my child. I have the chance to incorporate more formal numeracy practices into my child's day like worksheets and problem-solving activities.

Another parent with hight social status commented:

I don't have extra time due to my work, but I try to do simple numeracy activities during the weekend, like counting money or adding up groceries when I shop with my child.

Another participant with high social status said:

Since I'm well connected through my job, I am often privy to information about local programs and workshops that help with numeracy skills. I attend these with my child and actively engage my child in learning, knowing how important it is to get them ahead.

Another participant with high social status added:

My social circle includes many professionals who stress the importance of early numeracy. As a result, I have gotten the opportunity to learn various methods to engage my child in numeracy activities at home, such as using educational games or making up number challenges during car rides.

These responses show how social status impacts parental engagement in numeracy activities. Parents with higher social status often have more time, resources, and support networks to actively engage in their children's numeracy development, while those with lower social status may face barriers that limit their involvement, despite a desire to contribute to their children's learning.

4.2.3 Theme 3: Perceptions of Numeracy's Importance Based on Social Status

This theme explores how parents' social status shapes their perceptions of the importance of numeracy in their children's future success. Higher social status often correlates with a greater emphasis on the academic benefits of numeracy, with the parents viewing it as an essential skill for their children's academic success and future opportunities. In contrast, the parents with lower social status may have a different outlook on numeracy, potentially focusing more on immediate needs and day-to-day survival rather than long-term educational outcomes.

One participant with high social status said:

As a professional, I truly understand numeracy plays vital role in education and in everyday life. I want to ensure my child excels in this area because I believe it's a critical foundation for future success.

Another participant with low social status said:

Numeracy is very important to me. I believe that knowing mathematics well will give my child an advantage in school and life. I sit my child down and we practice whenever we can.

Another participant with low social status commented:

Growing up, I didn't have much focus on numeracy skills, but as an adult, I've realized how essential it is. I want my child to have better opportunities as my child grows, so I try to instill the importance of numbers and mathematics in my child's everyday routine.

Another parent with low social status said:

To be honest, I never really thought much about how important numeracy is. I just assumed my child would pick it up at school. Now, I understand that I need to help my child at home to ensure my child is ready for the next stage.

Another participant with high social status commented:

I know that numeracy can set my child up for success in the future. I stress the importance of mathematics every chance I get, and I try to make sure my child has access to tools and activities that can develop my child's numeracy skills.

These responses reveal how perceptions of numeracy's importance are influenced by social status. Parents with higher social status tend to prioritize numeracy as an essential skill for academic and professional success, while those with lower social status may not place as much focus on numeracy, possibly due to a lack of awareness or immediate practical need.

4.2.4 Theme 4: Social Support Networks and Numeracy Development

This theme explored how parents' social support networks influence their approach to numeracy development for their children. Social support networks, including extended family, friends, neighbours, and professional connections, can play a significant role in the resources, information, and encouragement the parents receive about supporting their children's numeracy development. The parents with strong networks, particularly those with connections in education or related fields, are more likely to have access to valuable resources and advice on fostering numeracy skills. In contrast, the parents without such networks may face challenges in acquiring information or resources, which could influence their ability to support numeracy development effectively.

One participant with high social status had this to say:

I count myself very fortunate to have a strong support system of friends and family who understand and encourage me to provide numeracy resources for my child. I get recommendations for books, games, and activities from people in my circle who understand the importance of numeracy development.

Another participant with low social status said:

My neighbour is a teacher, and she often shares tips and materials that can help with numeracy skills. Her support gives me confidence and I really appreciate it, because I sometimes feel unsure about how to help my child.

Another participant with high social status said:

Through my workplace, I have access to a network of other parents who discuss strategies for helping children with learning. Being part of that group has build my confident in engaging with my child's numeracy skills.

Another participant with low social status commented:

I don't have much support from family, but I have found local community groups and online parenting forums where I read more, ask questions and get advice about helping my child with mathematics. It's been very helpful in finding the right resources.

Another participant with high social status said:

My social network includes many professionals in fields where numeracy is important, it's really assisting with advice about how to incorporate mathematics into my child's life. These networks are vital in keeping me informed about new tools and ideas for supporting numeracy.

Another participant with low social status said:

I wish I had more support. But because of where we live, it's hard sometimes to find others who understand the challenges of helping a young child with numeracy. I try my best with what I know, but I could use more guidance.

Another parent with low social status said:

Having a group of parents to talk to about numeracy development has been so helpful to me. We share ideas and experiences, and this has made me more proactive in supporting my child's numeracy skills.

These responses highlight the importance of social support networks in shaping how the parents approach numeracy development. Those with access to knowledgeable networks tend to feel more confident and informed in their approach, while those with limited or no social support struggle to find resources or guidance, pointing to the importance of fostering accessible networks for all families.

4.3 Research Question Two: How do parental financial experiences influence Kindergarten children's numeracy capacity development in the Shama Circuit?

Parents' levels of income are good indicators of resources to be invested in developing kindergarten children's numeracy capacities. Income directly influences the provision of required learning resources, access to learning, and learning facilitating environments. More affluent families buy books, learning toys, and educational technological connectivity, allowing early numeracy achievement. Besides that, they can take their children to high-quality early childhood programs, enhancing the development of numeracy skills. Those who earn lower incomes might not be able to provide the same luxuries, perhaps limiting their children's participation in numeracy. In this research, the influence of various levels of income on the availability and quality

of resources for the kindergarten students will be highlighted. The following theme emerged from this research question:

4.3.1 Theme 1: Availability of Purchased Educational Resources for Children

This theme is the availability of educational resources within the home and is influenced by parents' incomes. The answers indicate that there are significant disparities between high-income and low-income families, leading to the numeracy development differences in children. Interviewees provided the following perspectives.

High-income parent stated that:

We can even invest in buying all the school and home-learning books and learning apps for my child. We also make sure there are numeracy games and puzzles at home. This makes it easier for my child to catch up with lessons at school.

Low-income parent asserted that

It is difficult to be able to provide all of the school books necessary for my child. I am only able to manage exercise books. I am also unable to buy numeracy toys or apps to aid development at home.

I make do with what I can. We do not have so much education toy, but we do use the counting beads and other cheaper alternatives. I want to spend more, but just isn't a reality because of the income.

Another high-income parent spoke:

I can pay enough money to purchase learning content for my child, particularly the ones that benefit numeracy development, like electronics, number boards.

Another high-income parent spoke:

I know how much it matters that my child has learning resources, but due to budget, we just can't manage it.

Another high-income parent also added:

I ensure that my child has the books he needs, but spare money for learning apps, toys or other learning aids there isn't. I make do with school base resources and the resources I can stretch to.

The responses indicate considerable variation in learning materials accessible on the basis of income. Wealthier families can afford substantial learning materials, and they can facilitate children's numeracy development, whereas poor families cannot provide basic equipment, having to rely on material provided by the school or inexpensive substitutes. Such inequality can lead to unequal educational opportunities because lower-income students struggle to maintain numeracy skills. The findings imply intervention to enable equal access to learning materials for every child.

4.3.2 Theme 2: Ability to support Children's Learning in School and Home

The theme explores parental support, both educational and through out-of-school learning experiences, and the way it changes according to income status. Responses reflect the variation in the ability to offer such support, directly influencing children's development in numeracy.

Below are a few of the participants' comments:

A high-income parent said that:

Since I can afford extra tuition, I have a personal tutor for extra numeracy progress. This puts my child ahead of class and improves his numeracy.

Another participant with low-income had this to say:

We cannot spare additional learning outside school. My child gets help from only the teacher during school hours and I also try to learn the lesson when my child comes back from school.

Another participant wth high income stated:

*I make the effort to offer extra learning opportunity at home, including watching instructional television and learning software. These are minimal and from my modest resources, and I couldn't possibly afford to hire the services of a teach*er.

These responses illustrate that more affluent homes can offer extra help through tutoring or out-of-school hours classes, supplementing numeracy teaching. Low-income families, on the other hand, are more reliant on offerings provided by the school and have lower access to support outside of the school. Support disparities in the learning process might be responsible for differences in numeracy development by income among children. Implications of the research are a call for low-cost, supplementary materials and support for poor families.

4.3.3 Theme Three: Parent Involvement in Children's Home Numeracy Learning Environment

This pertains to the level of parents' involvement in children's schooling and numeracy learning environment assistance in homes. Parental involvement was said to play a big role in the development of the children in numeracy, albeit that they differed by level of income and educational level.

Below is feedback from a low-income respondent:

I make the time to work with my child's learning by helping him with his homework and by counting with him with objects around the house. I believe it's a great support with a supportive home, so I make time each day to numeracy activities.

Another participant with high income also said:

As much as I would like to help, there are not always enough hours for me. I work very long hours, due to that, I am not always free to engage in my child's homework. Occasionally, I just tell her to do homework by herself.

One more participant with low income commented that:

I try to create home learning a good environment by keeping a quiet place for my child to learn. We have very little learning resources, but I also use real-life examples like purchasing, and some cooking utensils in helping my child with numeracy.

Another respondent with low-income added to that:

My concern is numeracy development for my child, but we have not much resources at home, so we employ some of the old tools such as counting stones and sticks. we also attempt to solve problems using whatever resources we have.

Another participant with high-income had previously reported that:

I would do more, but my own life is so busy that it's difficult to consider the development of my child's numeracy, because I come back late. I leave school to enforce the timetable and amenities that my child needs.

These are instances of the differing degrees of parent involvement in the development of numeracy. Parents who have more time and money provide well-organized, facilitating home learning environments, actively engaging in activities to facilitate numeracy. Parents who have fewer resources or time struggle to provide sustained help, employing school resources to compensate for the lack. The findings emphasize the need for interventions that assist parents and children, especially poor children, in building numeracy at home.

4.1.2 Theme 1: Availability of Educational Resources.

This is an issue that revolves around the presence of learning resources at home and is influenced by parents' salaries. The answers indicate that there are significant variations between high-income and low-income households, and therefore the difference in children's numeracy achievement. Interview participants expressed the following opinions.

Participants with high income stated that:

We can even spend to buy all the school and home-learning books and learning programs for my child. We also make sure there are numeracy puzzles and games at home. This helps it be easier for my child to keep up with the lessons at school.

Participants with low income further added that:

It's difficult to pay for all the school's required books, for my child. I can only buy exercise books. I am also not able to pay for numeracy toys or apps to support development at home.

One participant with low income reported that:

I survive on what we do have. We do not have many educational toys, but we get by on counting beads and other cheap things. I would like to spend more, but it just isn't possible under the income.

Another participant with high income said:

I can make enough money to purchase learning material for my child, particularly those that aid in developing numeracy skills, such as electronic equipment, number boards.

Another participant with low-income stated:

I understand how essential it is that my child should have learning material, but we just can't afford it on a low income.

Another parent with low-income further added:

I give my child the necessary textbooks, but no additional funds for learning software, toys, or other learning hardware. I use school-based resources and whatever material I can make do.

The responses capture sizeable variation in learning materials coming through income levels. More affluent families can access substantial learning materials, and children's numeracy development is also supported, but poor households can only supply basic tools and must resort to material available in school or economical substitutes. It is an imbalanced position leading to skewed opportunities in learning through the struggle that low-income learners have to sustain numeracy competence. The findings indicate the need for intervention to ensure equal access to learning materials for all children.

4.1.3 Theme 2: Education Support and Out-of-School Learning

The theme touches on support provided by parents, educational as well as through out-of-school learning activities, and how it varies depending on income status. Responses reflect the variation in being able to provide such support, which directly affects the development of children in numeracy.

A high-income participant commented that:

Since I am able to pay extra tuition, I have a private tutor for additional numeracy development. This puts my child in front of the class and improves her numeracy.

Another participant with low-income has commented:

We can't afford additional learning outside school. My child gets help only from the teacher during school time, and I also try to learn the lesson when my child comes back from school.

Yet another participant with high-income commented:

I do my best to offer extra learning experience at home, including the use of educational television and learning software. However, these are limited and from my restricted resources, and I cannot afford to hire the services of a teacher.

These responses illustrate that wealthier households can provide further support through tutoring or after-school programs that supplement numeracy teaching. On the other hand, low-income families are more reliant on what schools offer and have less access to alternative support. The inequality in assistance in the educational process may be responsible for differences in children's numeracy development based on income. Implications of the findings include a need for low-cost, supplemental instructional materials and support for financially strapped families.

4.1.4 Theme Three: Parent Involvement and Home Learning Environment

This question deals with the extent to which parents are involved in the education of children and the numeracy learning-supportive home environment. Parental involvement is found to significantly enhance children's numeracy development, with variations observed based on income and education level.

One of the respondents with high-income answered:

I make the effort to engage with my child's learning by helping with her homework and by counting with her with objects in the home. I believe it's a great support with a supportive home, so I allocate time each day to numeracy activities.

Another participant with low-income also mentioned:

As much as I would love to help, I don't always have the time. I work long hours; due to that, I am not always able to be involved in my child's schoolwork. At times, I just instruct him to do homework on his own.

Another participant with high income added that:

I try to create a learning conducive environment at home by allocating a quiet space for my child to learn. We have just a few learning materials, but I also use real-life instances like shopping and some cooking materials to help my child with numeracy.

Another participant with low income added that:

My child's numeracy development is my concern, but with few resources at home, we utilize some traditional tools such as counting sticks and stones. we also attempt to solve problems with whatever tools we have.

Another participant with low-income reported that:

I would rather do more, but my way of life is so busy that it's difficult to consider the numeracy progress of my child, as I tend to come home late. I leave the school to impose the routine and resources that my child needs.

These are instances of the diverse levels of parent involvement in the development of numeracy. Parents with more time and money establish well-organized, facilitating

home learning environments, engaging directly in activities to promote numeracy. Parents lacking resources or time, however, struggle to provide extended support, leveraging school material to compensate for the gap. The findings underline the need for interventions that aid parents and children, especially those from low-income families, in fostering numeracy development at home.

4.1.5 Theme Four: Influence of Scarce Resources on Children's Numeracy Development

This theme discusses the effect of the inadequacy of resources on the numeracy development of children, particularly those from low-income families. The lack of adequate learning materials and devices can significantly hamper the ability of children to gain appropriate numeracy skills.

One of the participants from low income responded that:

My child prefers learning numeracy at home, but we cannot practice numeracy as much numeracy from home. I can see the difference when there are other children and they have the chance to learn with such things as learning games and toys and my child is not allowed.

Participants with low income observed that:

It's frustrating because I know how much numeracy is going to be important for my child's future, but I don't have the means to help my child, especially their numeracy. I feel like I'm not providing my child with the best opportunity to educational success.

Another respondent with high income went on to say that:

Without adequate access to resources, it is difficult for my child to understand the things being taught in school. I do my best to explain the problems at home, but sometimes it's difficult without adequate tools.

Another parent with low income added by saying that:

We don't have much, so I often feel my child is falling behind, as my child struggles with keeping up with the curriculum. My child may not get the opportunity to practice numeracy at home, and it impacts his confidence.

Another parent with low income mentioned that

My child has potential, but as we don't have enough learning resources, he is unable to develop his numeracy fully. I'm worried it might affect his academic performance.

The responses highlight that a lack of enough resources can have a great impact on numeracy development. Low-income children find it difficult to grasp the materials that are used to take their learning outside the classroom, and this ultimately results in gaps in numeracy fundamentals. This gap further highlights the need for accurate interventions and support measures to ensure numeracy development resources are made available to all children, irrespective of their socio-economic background.

4.4 Research Question 2: How does education among parents affect numeracy engagement with their children who are at the kindergarten level?

The educational level of parents also plays a crucial role in their involvement in the learning of their children, for instance, in numeracy. More educated parents may feel more confident that they can help their children develop their numeracy, while less educated parents may not be able to engage in these activities, and, therefore, the development of their children's numeracy may be affected.

4.4.1 Theme 1: Knowledge and Confidence in Supporting Numeracy Activities

This theme is concerned with the effect of parents' level of education on their confidence and capacity to support their children in numeracy activities. Parents who are more educated might be more familiar with numeracy principles and learning strategies and thus be more engaged and effective in supporting their children's learning.

Participant with high educational background said:

I was taught mathematics at school, so I feel comfortable with instructing my child in counting and basic number ideas. I find myself incorporating learning into daily routines like cooking or shopping, and it makes it easier for them to grasp some basic things.

Participants with low educational backgrounds responded:

I don't know how to support my child's numeracy development because I didn't finish school. I think I could do better if I knew the right way to support.

A participant with a low educational background said:

I only attended primary school, so I struggle to understand how to make mathematics fun for my child. I try to encourage her, but sometimes I get confused about how to explain it.

Another participant with low educational background said:

I don't have a lot of formal training but do my best by making use of materials around the house to help my child's mathematics, for instance, I go with him to the local school and highlight numbers on the school building. I wish I were more aware of how to make mathematics more interesting.

These responses indicated the enormous difference that education makes in allowing parents to support numeracy work at home. More educated parents feel more confident and are better placed to provide structured and varied opportunities for learning. Less educated parents, however, are at a loss, not knowing how to assist their children properly. This disparity indicated the need for resources or programs that can help all parents, regardless of their education level, improve numeracy in their children.

4.2.2 Theme 2: Availability of Learning Strategies and Techniques

This theme examined how parents' educational backgrounds influence their access to or awareness of effective learning strategies and techniques for supporting their children's numeracy development. Educated pare were more aware of or had access to strategies that help reinforce numeracy concepts in engaging and effective ways.

Participant with high educational background shared:

"I am familiar with different learning strategies, so I know the techniques like using flashcards, number games, and educational apps. I try to incorporate these into our routine to keep my child interested in learning.

A Participant with a low educational background mentioned that:

I don't really know about any special techniques to use. I just try to help when my child asks me questions. I wish I knew more about activities I could do with my child that would make learning easier and fun.

A participant with a low educational background said:

I learned a few strategies from my friends who are teachers, like using songs or rhymes to teach counting. I'm not always sure if I'm doing it rightly, but I try what I can.

Another participant with a low educational background responded:

Because I didn't get much education, I don't know many ways to teach numeracy beyond just showing numbers. I would have made learning more fun for my child if I had more knowledge on creative methods.

These responses reveal that parents with higher educational backgrounds have greater access to a variety of learning strategies and techniques that support numeracy development. They are more likely to use formal or informal resources, such as books, apps, and structured games, to enhance their children's learning. On the other hand, parents with lower education levels may not have the same awareness of these methods, potentially limiting their children's exposure to diverse and engaging numeracy activities. This suggests that providing accessible resources or training for all parents could help bridge the gap in numeracy development opportunities.

4.2.3 Theme 3: Parent's Expectations and Attitudes Toward Numeracy Learning

This theme explored how parents' educational backgrounds influenced their expectations and attitudes toward their children's numeracy learning. Parents with higher levels of education have more specific or higher expectations for their children's academic achievement, which affects the level of involvement and effort they put into supporting their children's numeracy development.

A Participant with a high educational background expressed:

My expectation is to see my child excel in mathematics, just like I did. I believe in setting high expectations for my child and supporting my child's learning in every step.

Participant with a low educational background shared:

I try to encourage and support my child, but honestly, I don't know what to expect from them at this age. I just want my child to enjoy learning without pressure, especially when it comes to numbers.

Another participant with low educational background commented:

Because I didn't go beyond primary school, I feel it's important for my child to master basic numeracy skills early. I think a strong foundation in mathematics will help my child in school and life.

Another participant with low educational background said:

I don't have high expectations because I never excelled in school myself. I'm just happy if my child is doing okay with their numbers.

These responses highlighted the varying expectations the parents have for their children's numeracy development, often shaped by their own educational experiences. Parents with higher educational backgrounds tend to set higher expectations for their children and are more likely to emphasize academic achievement, including numeracy skills. In contrast, parents with lower levels of education may have more modest expectations, focusing on basic learning and ensuring their children enjoy the learning process. This suggests that parents' attitudes and expectations can significantly influence the support and opportunities they provide for their children's numeracy development, pointing to the need for interventions that encourage positive attitudes and realistic expectations for all families.

4.2.4 Theme 4: Frequency of Parent-Child Numeracy Interaction

This theme explored how often the parents engage with their children in numeracy-related activities, and how this frequency is influenced by parents' educational backgrounds. Parents with higher educational backgrounds engaged in frequent numeracy interactions, using structured or informal activities to enhance their children's numeracy skills.

One participant with a high educational background commented:

I have a daily routine where I practice numeracy with my child, we either play games, counting, or helping my child with homework. I believe regular daily practice is the key to obtaining mathematics skills.

Participant with a high educational background responded:

Because of my busy schedule I do not have time to practice numeracy with my child daily, but I do try to help when I can. Sometimes we count items in the house, but this is not frequent.

Another participant with a high educational background said:

Because I did education, I know how important it is to do numeracy activities with my child every day. I try to do something mathematics with her every day, be it doing mathematics games with my child, or we practice counting.

One participant with a high educational background said:

I'm busy during weekdays so I just have time to fit in numeracy activities at weekends when I'm not at work. We don't get a lot done in the week because I'm busy, but I maximize our weekend time.

These responses illustrate the difference in how frequently the parents engage in numeracy activities with their children, largely influenced by their educational background. The educated parents tend to have more knowledge of the importance of consistent numeracy interactions and engage in them more frequently. In contrast, the parents with lower education levels or busier schedules have no time or confidence to provide daily numeracy support, leading to less frequent engagement. This highlights the need for strategies to encourage regular numeracy interactions for all families, regardless of background or time constraints.

4.2.5 Theme 5: Influence on Long-Term Educational Goals

This theme examined how parents' educational backgrounds influenced their perceptions of the importance of numeracy in achieving long-term educational goals for their children. Educated parents were aware of how foundational numeracy skills are for future academic success, which can lead to stronger long-term expectations and goals for their children.

One participant shared:

I understand the importance of strong numeracy skills for my child's future, and I see how essential it is for success in school and beyond. I encourage my child to master mathematics early on because I believe it will create more opportunities in the future.

A participant with a high educational background stated:

My education made me realize that mastering basic numeracy will help my child greatly with higher levels of mathematics later. I focus on building a solid foundation now for my child's future success, especially when my child moves to higher levels.

A Participant with a low educational background commented:

I don't have a lot of education myself, but I know my child needs good mathematics skills for academic and life success. I may not have high expectations, but I still believe my child needs to be able to do basic mathematics to do well in the future.

A participant with a low educational background shared:

I'm just trying to help my child get through this stage I don't want to worry myself too much about the future. I don't know much about how numeracy influences long term educational goals, but I want my child to be ready for school.

These responses demonstrated that the parents with higher educational backgrounds often recognize the importance of numeracy for future academic success and are more likely to set long-term educational goals for their children. They emphasize the need for foundational numeracy skills to ensure future academic achievement. On the other hand, the parents with lower levels of education may be less focused on long-term educational goals, often due to a lack of awareness or understanding of the connection between early numeracy and future academic outcomes. This indicates the importance of providing all parents with information and resources to understand how early numeracy development contributes to their children's long-term educational success.

4.3 Research Question Three: How do parental occupations contribute to shaping numeracy skills of kindergarteners?

The nature of parents' occupations can influence the extent to which they are able to foster numeracy skills in their children. Parents working in occupations that require mathematics skills or problem-solving may be more inclined to value and encourage numeracy development in their children. They may also be able to provide practical examples of how numeracy is used in everyday life, thereby fostering a natural learning environment. In contrast, parents in occupations with limited demands for numeracy may not emphasize its importance as strongly, which could affect the degree to which they engage their children in numeracy-related activities. This study investigated the relationship between various types of occupations and the fostering of numeracy skills in kindergarten learners.

4.3.1 Theme 1: Occupations Requiring Mathematics Skills and Parent Engagement

This theme explored how parents with occupations that demand mathematical skills, such as engineers, accountants, or teachers, are more likely to engage in numeracy

activities with their children. These parents may have a stronger appreciation for the importance of numeracy and may be able to incorporate mathematics into daily interactions, thereby supporting their children's numeracy development.

For example, one participant with a numeracy-related occupation shared:

As an accountant, I use mathematics every day, so I make sure to integrate numbers into my child's learning. I make my child count the change when we shop and I also ask my child to help with basic calculations during our routine tasks.

Another participant with high education level commented:

Being a teacher, I am aware of the importance of early numeracy. I often engage in mathematics related games or exercises with my child to reinforce what my child learns at school, to ensure my child see mathematics as part of my child's daily life.

These responses showed that the parents in occupations with strong mathematics demands are more likely to prioritize numeracy in their children's development and can provide consistent, practical examples of mathematics usage.

4.3.2 Theme 2: Occupations with Minimal Mathematics Demands

This theme investigates how parents in occupations with minimal mathematics demands, such as those in retail, hospitality, or manual labour, do not emphasize numeracy in their children's learning. These parents are less confident in teaching numeracy or do not see the value of frequent numeracy engagement, potentially leading to less involvement in numeracy-related activities.

A parent with high educational background noted:

My job in retail doesn't really require much mathematics, so I don't always think to engage my child in mathematical activities even though I'm aware of its relevance.

Participant with low educational background asserted that:

I focus more on other aspects of learning, like language or motor skills.

Another participant with low educational background shared:

I work as a cleaner, and I'm not very confident with mathematics myself. I try to encourage my child everyday about my child's homework which I sometimes assist my child to do, we don't do many numeracy activities at home. I leave that to the teachers.

These responses highlight that the parents in occupations with limited mathematics application may have fewer opportunities or less inclination to engage in numeracy-related activities, which could affect their children's numeracy development.

4.3.3 Theme 3: Parent's Occupation and Time Availa bility for Numeracy Activities

This theme examined the relationship between the nature of the parents' occupations and the time they can dedicate to supporting their children's numeracy learning. The parents in occupations with more flexible hours or those working from home may have more time to engage in numeracy activities, while those with demanding jobs may struggle to find time to do so.

One parent with low education background shared:

Since I work from home, I can often engage in numeracy activities with my child after school. We play mathematics games, do counting activities, and use numbers in daily routines, like cooking or cleaning.

Another participant with high educational background mentioned:

I work long hours at a hospital. Sometimes, before I get back home my child is already asleep, so I don't have much time for numeracy activities with my child. I try to help when I can, but it's difficult to find consistent time to practice mathematics.

These responses suggest that the parents with flexible or less time-intensive jobs may be able to support numeracy development more frequently, while those with demanding jobs may face barriers to engaging in regular numeracy activities.

4.3.4 Theme 4: Perception of Numeracy's Importance Based on Occupation

This theme explores how parents' views on the importance of numeracy for their children's future success are shaped by the nature of their occupations. Their working in fields where numeracy is critical has placed greater emphasis on developing their children's mathematics skills, while those in non-mathematics-related occupations may not prioritize numeracy as highly.

One participant with high educational background stated:

As a manager in a business company, I know how important mathematics is for future job prospects. I make sure to encourage my child to put in their best in mathematics, not just for school, but for my child's future career opportunities.

Another parent with high educational background shared:

Being a chef, I deal with measurements all the time. I try to help my child to see and understand how mathematics is used practically in the real world and make sure my child understands its importance for my child's future.

However, another parent with low educational background noted:

I don't really see mathematics as a big deal because my job doesn't require it much. I focus more on other skills, like socialising or creative thinking, and I don't push too much on my child's numeracy, I rely on what they learn from school.

These responses suggest that the parents working in fields that require numeracy tend to place more value on teaching mathematics skills, while those in occupations with little demand for mathematics may not prioritize numeracy development in the same way.

4.3.5 Theme 5: Real Life Application of Numeracy in Parents' Occupations

This theme looks at how parents' occupations that use numeracy provide natural, everyday opportunities to teach mathematics to their children. Parents who engage in occupations requiring numeracy are likely to use practical, real lif- examples to demonstrate the relevance of numeracy, helping their children understand its application in everyday life.

One participant with low educational background explained:

With what I do, I frequently use measurements and calculations in my work. I try to incorporate these tasks into our home activities by showing my child how I measure and calculate things for a project.

Another parent with low educational background shared:

Working as a truck driver, I use mathematics to calculate fuel usage, distance, and travel time. When I'm around, I try to explain these concepts to my child by showing how we use numbers and measurements in everyday situations.

These responses indicate that parents in occupations that utilize numeracy can offer their children tangible, real-world applications of mathematics, which can help foster an understanding of the importance of numeracy beyond the classroom.

4.5 Discussions of findings

4.5.1 Research Question One: What role does parents' social status play in providing resources or support for numeracy development in kindergarten learners?

The decision of the parents to enroll their child in school at a young age and emphasize numeracy skills is part of a broader trend in which educational attitudes are strongly influenced by socio-economic status. There is evidence that more socially advanced parents are likely to view education, especially early childhood education, as an investment in the child's future, giving him an edge later in life. For example, Duncan et al. (2023) found that early investments in children's schooling yield returns in the long term, particularly for cognitive attainment and economic productivity in the future. This parent's emphasis on numeracy and English competencies illustrates the perceived importance of these foundation subjects in ensuring future achievement.

The narrative shows that the parent, despite the fact that they make their income from a number of small business ventures, has sufficient economic stability to purchase learning resources such as educational devices and teaching materials. This function of the resources in enhancing learning is also confirmed by studies on the use of educational technology, which can significantly improve numeracy skills. This shows the parent's ability to give their child an edge in both school and home learning settings.

Secondly, the economic ability of the parent to utilize private tutors makes them stand out from low-income families, as they lack economic flexibility to pay for such

additional learning assistance. As stated by Magnuson & Duncan (2019), it is possible for wealthy families to invest more on their children's education in extracurricular education, private tutoring, and other materials. These additional resources are instrumental in determining educational results and future achievement, especially in areas such as numeracy, which are precursors to more general academic success.

The parent's observation that schools use the same materials for everyone is an expression of an egalitarian ideal within the education system. However, studies suggest that while schools may try to provide equal opportunity for learning, educational disparities result from unequal availability of resources outside the classroom. Yang & Lee (2022) noted that socio-economic differences in investments in education within the household may lead to large achievement gaps even when schools are providing equal opportunities to all the students.

For poor families, who cannot possibly afford such additional learning aids and materials, the perception of the value attributed to numeracy skills may vary. Such families will be concerned with short-term, concrete needs over long-term school investments as a result, low socio-economic students may not receive the same degree of attention accorded to numeracy skills, leading to inconsistency in academic achievements among social classes.

Lastly, the parental social status allows them to consider numeracy a key factor determining their child's future success on the basis of formal education and additional learning in the home environment. For poor families, though, they do not appreciate or even notice that numeracy should be of the same importance since their immediate focus is more related to survival as opposed to future educational attainment. This

inequality reflects the manner in which social standing can affect parents' perceptions of education and the priorities and outcomes of education.

The influence of parents' social standing on what they perceive about numeracy skills and their ability to promote children's growth is vast and multifaceted. Parents from poorer backgrounds are likely to experience severe financial difficulties that impact their capacity to obtain needed education resources for their children. For example, numeracy resources such as UC Arithmetic Mathematics, critical to the development of fundamental mathematics skills, become too expensive for most families whose economic capabilities are limited. Economic pressure is increased by the requirement to pay fees for feeding purposes, hence constricting family capacity to make investments in educational materials. The financial stresses on low-income families lead to their inability to invest in supplemental materials such as educational toys, educational software, or individualized tutoring that can potentially aid numeracy. The children growing up in these households thus lack access to tools and experiences crucial for developing strong numerical foundations. This lack can lead to difficulties with mastering simple numeric calculations, that in turn have a ripple effect on their life at school as well as overall confidence levels pertaining to their arithmetic skills.

Research supports the notion that economic hardship significantly affects cognitive development by limiting access to critical learning materials and a stable home environment. Magnuson & Duncan, (2019) argued that poverty hinders cognitive development in children by restricting their access to enriching educational experiences and stable environments. The absence of these resources and experiences can contribute to a cycle of educational disadvantage, where children from lower-income backgrounds may struggle to achieve the same level of academic success as their more affluent peers. Moreover, the impact of financial constraints extends beyond immediate educational

needs. The stress and instability associated with economic hardship can also affect a child's cognitive and emotional development. For instance, the inability to provide a quiet and supportive learning environment, due to financial pressures or overcrowded living conditions, can further impede a child's ability to focus and excel academically.

The financial barriers faced by parents from lower-income households significantly influence their ability to provide essential educational resources for their children's numeracy development. This financial strain not only limits access to crucial learning materials but also affects the overall learning environment, contributing to educational disparities. The link between economic hardship and limited access to educational resources underscores the broader issue of how socioeconomic status can shape children's academic outcomes and long-term success.

The parents' educational background is another pivotal factor influencing their perceptions of numeracy and their ability to support their children's development in this area. Educated parents are generally better equipped to assist their children with homework and provide guidance on numeracy skills. Their familiarity with academic concepts and pedagogical strategies allows them to offer more effective support and reinforcement of classroom learning. This advantage can lead to enhanced academic performance in numeracy and other subjects, as these parents can help children navigate challenges and encourage a positive attitude toward learning.

In contrast, the parents with limited or no formal education may face significant challenges in supporting their children's academic endeavours. They might lack the necessary knowledge and confidence to effectively help with homework or understand the complexities of numeracy instruction. This gap in parental support can contribute to lower academic achievement and reduced numeracy skills among children from these

families. The disparity in parental involvement is a clear indicator of how socio-economic status impacts educational outcomes, as those with less education might struggle to engage in their children's learning process as effectively as their more educated counterparts.

Studies emphasize that more educated parents are more apt to use those linked with "concerted cultivation," as labelled by sociologist Lareau (2017). Concerted cultivation is the active guiding and shaping of a child's growth through organized activities, academic enrichment, and overt supervision (Manning, 2019). More highly educated parents are not only more informed but also in a position to capitalize on resources like tutoring, computer software, and after-school programs that enhance numeracy and other abilities. More highly educated parents also demand more of their children's educational success and are more likely to construct an environment that reinforces the value of education. Less well-educated parents, on the other hand, might be either less knowledgeable or less well-resourced to provide such organized development practice. This can lead to a less focused way of supporting their children's learning, with support being less knowledgeable and more responsive. The absence of organized support can influence children's capacities to attain good numeracy skills and impact their overall educational progress. Besides, the level of education of the parents determines the parents' attitude towards the role of numeracy skill. The educated parents are more likely to value and regard the role of numeracy in rendering their children successful in the future years, having realized the impact of numeracy in both academic and working places. These are the most likely to cultivate a good attitude towards numeracy and invest in the education of their children. Conversely, less educated parents might be unaware of the long-term advantages of numeracy skills, and their motivation to seek further resources or assistance might therefore be influenced.

Parental levels of education also have a significant part to play in ascertaining their own numeracy levels and capacity to assist their children's learning. Parents who are educated are more likely to offer effective academic support and concerted cultivation practices that result in improved educational attainment for their children. Parents who are less educated are less likely to be in a position to offer the same support levels, reflecting the wider influence of socioeconomic status on children's learning and development.

The domestic environment is central to children's development of numeracy skills. More economically advantaged homes are more likely to offer a supportive learning environment, one that is stable, quiet, and well organized. Such an environment enhances intellectual growth by limiting distractions and offering a well-organized environment to practice and acquire numeracy skills. For example, a study room with the necessary study equipment and devoid of outside disturbance can greatly help improve the focus and academic performance of the child. Being able to provide this kind of facility is directly related to the family's level of income, as greater income levels are more likely to provide the means for a more pleasant and enriched study environment. On the other hand, children from less affluent families may be raised under circumstances that are less conducive to learning. Crowding, high noise levels, and less square footage for quiet study spaces are all factors which can work against a child's ability to attend and concentrate properly on their numeracy studies. These types of environmental factors often result in increased levels of distraction and decreased available time for quiet study, which can negatively impact cognitive development and academic success. Bronfenbrenner's ecological systems theory speaks to the significance of the proximal environment on a child's development, and children who have less conducive home environments, therefore, will be more apt to have added

barriers to achieving numeracy and other educational skills. This inequality speaks to the manner in which socio-economic status can impact educational attainment by affecting the quality and stability of the learning environment.

Interestingly, the focus that parents put on numeracy abilities is not always in line with their family income. While one might think that high-income parents, with more resources at their disposal, would place a premium on numeracy schooling, this is not always the case. Some high-income parents do not prioritize numeracy skills to as great an extent, instead focusing on other academic or extracurricular endeavors. Yet, the less affluent parents, though finance is a constrain, can be high in aspirations for numeracy skills because they are aware of its relevance to making their wards successful in later life. That such disparity should exist in terms of prioritization highlights that attitudes towards numeracy are shaped by a host of factors other than income, like personal values, educational convictions, and general attitude towards education. Yet, the capacity of less affluent parents to act upon their perceptions of the value of numeracy is systematically constrained by their own financial resources. Regardless of whether they attribute high value to numeracy, insufficient resources can impinge on their capacity to offer the desired educational provision or support. Nyaphisi (2021) notes that socio-economic status powerfully influences the material and emotional resources that parents have at their disposal. More affluent families are more likely to be able to invest in education resources, extracurricular activities, and enrichment programs that facilitate numeracy development. Less affluent families, however, may not be able to offer these resources, leading to differences in the extent of educational support and, in turn, to children's academic achievement. This contrast demonstrates how socio-economic influences determine not just attitudes to the necessity of numeracy, but also the practical capacity to facilitate and augment children's learning experiences.

Variations in lower- and higher-income families' children's numeracy achievement have extensive long-term consequences for their subsequent well-being. Numeracy proficiency is the cornerstone of numerous professional paths since it is the doorway to professional fields in areas like engineering, finance, science, and technology. Numeracy proficiency is not just vital for academic achievement but also for problem-solving and dealing with complicated tasks in many professional fields. Children who come from families with more income, and therefore tend to have access to superior educational resources and support, are more likely to acquire good numeracy skills that will serve them well throughout their education and on into their working lives. These skills can contribute to improved school performance and more career opportunities, which can eventually translate to increased economic stability and career progression. Conversely, poor children who are deprived of numeracy skills can experience formidable academic and economic disadvantages. Numeracy deficiencies at an early age can impair their achievement in future stages of education, resulting in poorer academic success and reduced opportunities for further education and well-paying employment. Duncan et al. (2023) illustrated, through evidence, that there is a robust relationship between early mathematics ability and subsequent academic achievement, highlighting how crucial numeracy is to long-term academic attainment. Students who fall behind in numeracy as a result of insufficient resources and support can face continued difficulties that define the path of their academic lives and even subsequent career opportunities. This disparity refers to the need to tackle inequalities in education and offer focused support to bridge the gap and enable all children to acquire the numeracy skills that they will need in order to thrive in the future.

The parents' socio-economic status in their own society significantly influences their own attitude towards numeracy skills and their capacity to enhance their children's academic progress. Financial capital, education of parents, home atmosphere, and availability of resources are all important determiners of the priority that parents accord and develop in numeracy skills. These determiners are responsible for the increasing disparity in the academic performance of students from various socio-economic backgrounds, with long-term implications for their success.

Parents' social status considerably influences parents' attitudes toward numeracy ability because of their different abilities to obtain and invest in educational resources. More prosperous families are more capable financially of supplying a range of educational resources and support networks, which make a great contribution to the academic growth of their children. Having the means to pay for textbooks, electronic gadgets, and subject matter learning aids, higher-income parents can give their children a better learning experience beyond the standard school syllabus. Parents with higher incomes tend to invest in learning apps, interactive learning software, and private tutors, which are necessary to complement and supplement classroom learning (Burt & Johnson, 2018). This additional support is required to help develop sound numeracy skills that underpin future academic and professional success.

More affluent parents are also more likely to view numeracy skills as highly important to their children's futures, as a result of their greater levels of awareness of educational and career opportunities. They view numeracy as a gateway skill to college and better-paying employment, based on their investment in their children's schooling and the beneficial outcomes they perceive (Magnuson & Duncan, 2019). Their concern with numeracy is evidenced by their readiness to offer extra support for and complements to their children's mathematics skills.

Poorer households, on the other hand, frequently lack the capacity to ensure the same level of educational support owing to a lack of funds. Their home environment might lack the structure and resources to support a positive attitude towards academic work and learning. This contrast illustrates the effect of socio-economic status on attitudes towards numeracy and the support available for the development of the child. The support provided by more affluent parents contributes not just to immediate academic success but to long-term academic success as well. Evidence demonstrates that early numeracy investments have enduring consequences for a child's future academic and professional success (Duncan et al., 2023). More resourced children from more affluent families are more apt to develop sound numeracy skills, succeed at school, and go on to university or professional occupations, which reinforces these parents' belief that numeracy is essential for their children to thrive. The capacity of better-off parents to invest in numeracy resources and provide a supportive learning environment illustrates how social status affects attitudes towards numeracy ability and access to resources to enhance children's educational progress.

Less well-off parents face severe financial restrictions that undermine their own capacity to buy new educational resources and assist their children's numeracy progress. These limitations restrict their ability to invest in other inputs like textbooks, computer assistance, or private tuition, which are essentials for the delivery of a quality educational experience. While they acknowledge the value of numeracy skills and are inclined to invest in their children's education, their economic circumstances generally restrict their freedom to translate these beliefs into action. Not only does this economic difficulty impact their direct support for their children's education, but it also affects their children's cognitive development and academic achievement in the longer term. Cheung et al. (2021) point out that economic difficulty can suppress cognitive

development through restricted access to basic learning materials and stable learning environments.

Aside from financial limitations, parental levels of education also significantly influence their awareness of and capacity to facilitate numeracy skills. More educated parents are more likely to be aware of how crucial numeracy is to their children's future success. They are more likely to be capable of helping with homework, offering educational inspiration, and creating a home environment conducive to learning.

The parents who are themselves educated are more likely to understand how numeracy skills play a part in academic and professional opportunities and are better able to support their children's learning through the provision of knowledgeable guidance and resources (Kyeremeh & Dorwu, 2022).

The parents who have themselves had very little formal education may themselves not appreciate the value of numeracy skills or may not possess the necessary knowledge and skills to best support their children's learning. This knowledge and support gap can reinforce educational inequalities, with children growing up in less educated families getting less support and guidance, having fewer resources, and being influenced in their academic growth and attainment (Magnuson & Duncan, 2019). The absence of this support can be especially harmful to children's numeracy capacity since they do not get the same kind of educational enrichment as children from more educated families.

The socio-economic status of the parents in their society significantly influences their perception of numeracy skills and can play a role in the academic progress of their children. More educated and affluent parents have a greater chance of stressing and supporting numeracy development, which leads to academic success and future success for their children. In contrast, poorer parents, while also acknowledging the importance

of numeracy, are faced with significant barriers that limit their capacity to provide adequate support. These barriers can affect the learning experiences and ultimate academic achievement of their children, echoing the deep connection between social position, recognition of the importance of numeracy, and the capacity to provide effective support for children's learning requirements.

4.5.2 Research Question Two: How do parental financial experiences influence the development of numeracy skills in kindergarten learners in the Shama Circuit?

The parents who have higher socio-economic status tend to have more money, and therefore are in a better position to offer an enriched home environment, which is more conducive to learning. That is, they can afford to have a variety of learning resources, including books, puzzles, learning games, and computer-based learning materials, that can enhance their children's numeracy achievement. Access to such resources gives children increased opportunities to become involved in learning activities that are challenging and stimulating, developing an early interest in numeracy and other subjects. Ghazali et al. (2021) pointed out that such involvement in learning activities is associated with more favourable cognitive development outcomes since children from more affluent families tend to have access to more varied and higher-quality learning materials.

Also, the parents with more income are better placed to provide time and attention to the educational needs of their children. These parents might have more flexible working hours or the financial capability to fund childcare or tutoring services, which also work in favour of their children's learning and development. Flynn (2021) noted that parents with more financial resources are usually in a better position to provide more stimulating learning environments, both in terms of quantity and quality of provisions. This ranges from simple educational materials to more complex educational materials

such as educational apps and interactive learning software that are designed to enhance developing numeracy skills at an early stage.

Here again, the parents who belong to higher socio-economic groups tend to be more aware of the value of early childhood education and could have greater educational expectations for their children. They are also likely to be involved in home-based learning activities, such as reading with their children, playing learning games, or using everyday activities as learning opportunities. This active involvement in the learning of their children sets the stage for numeracy skills by making learning a part of their everyday routine. These parents are also more likely to enroll their children in quality preschools or early childhood education programs that emphasize numeracy and other foundational skills, further stimulating the cognitive development of their children.

Also, the parents with higher income are also more likely to engage in stimulating after-school activities, such as trips to museums, science camps, or mathematics clubs, which also provide additional learning and acquiring numeracy skills. These activities not only enhance children's understanding of number concepts but also help in the formation of a positive attitude towards learning and a love of learning. The advantages that come from a more advantaged socio-economic status can make a significant amount of difference to a child's learning experience, particularly in the acquisition of numeracy skills. Having access to a large variety of learning aids, coupled with the emphasis on learning and the availability of additional learning opportunities, gives children from more privileged families substantial head starts in their learning development. These early advantages consistently lead to better performance in school and a greater level of achievement in subsequent learning endeavours.

However, having more income does not automatically translate to parents providing their children with more educational resources. There are parents who have sufficient financial means but may not see the need to invest in those kinds of resources. Whether or not they are inclined to invest in educational resources is more a matter of their personal beliefs and priorities than their financial capacity (Phair, 2021). These parents might think that the school materials are adequate or that supplementary materials are unnecessary, suggesting different values or educational philosophies. Lower-income parents, on the other hand, place a strong value on education and might prioritize providing educational materials despite their limited incomes. For most of these parents, schooling is seen as the gateway out of poverty, and, therefore, they are ready to sacrifice significantly in an effort to provide their children with whatever necessities for them to perform. This signifies that even if finance is an inhibition, the value of education is strong enough to cause parents to move out of their way to accommodate their children in school when there are scant means.

In addition, broader social and community factors, known as the exosystem, also influence numeracy development. Access to quality early childhood education programs and community resources varies according to socio-economic status, therefore leading to disparities in educational experiences (Ovansa, 2017). Children from low-income backgrounds may find it difficult to access stimulating educational experiences, therefore, varying in their numeracy development compared to children from more advantaged backgrounds (Sosu & Pimenta, 2023). While the parents' level of income determines whether they can or cannot provide educational supplies, several other factors enter the picture as well. Cultural values, education levels, and even the mere awareness of the necessity of such supplies all have their impact on what a parent chooses to do. Understanding such influences is useful to remediate education gaps

successfully. Interventions must consider both financial and non-financial barriers faced by different groups of parents with a view to making it possible for all children to access the educational materials they need through community involvement, sensitization, and selective assistance programs (OECD, 2018).

The parents with lower incomes face extreme challenges in augmenting educational materials above and beyond those traditionally supplied by schools. This limitation can affect their children's learning process and development, especially in acquiring numeracy skills. Schools do provide basic learning resources, but these are not sufficient to guarantee a balanced acquisition of numeracy. To acquire good numeracy skills, children need to be exposed to various learning resources beyond traditional textbooks and worksheets. These can include interactive toys, educational games, and digital applications that are designed to enhance mathematical thinking and problem-solving (Ghazali et al., 2021).

Access to these additional materials, however, is very much dependent on the socio-economic status of the parents. The parents who are poorer may not be able to provide these additional materials. Toys that are aimed particularly at supporting the development of numeracy, such as number puzzles, counting blocks, or mathematics games, can be relatively expensive (Flynn, 2021). Electronic learning apps, now increasingly popular as educational tools, also require access to technology, such as smartphones or tablets, and often have additional costs in the form of downloading or subscription (Robinson & Harris, 2014).

These digital applications are particularly beneficial in the development of numeracy because they provide interactive and engaging ways of learning mathematics skills among children. The applications are capable of adapting to a child's learning pace,

providing immediate feedback, and making complex concepts simpler to understand through interactive and graphical presentations (Sosu & Pimenta, 2023). However, the cost of the technology needed and the apps themselves could be a significant barrier for lower-income families. In addition, access to these digital tools on a continual basis must be backed up by continual internet access and electricity, which can contribute to the financial difficulty for such families (Philip & Williams, 2019). The disparity in access to educational resources often has kids from poorer families relying on the limited resources provided by schools, which are often kept at just meeting the basic education standards. These resources, while functional, may not cater to the diverse learning needs and styles of all students, especially those who require more hands-on or visual means of comprehending challenging ideas. As a result, children without access to other learning resources may be deprived of the opportunity to engage in more interactive and richer learning experiences that have the potential to enhance their numeracy knowledge dramatically.

Interactive learning experiences, such as the use of manipulatives, educational computer software, or technology-based systems, allow children to discover mathematics concepts more intuitively and concretely. These tools act to demystify intangible concepts by providing real-world applications and graphical depictions, making the tenets of numeracy easier for children to grasp. For poorer children, however, such materials are beyond their means. Schools in poorer areas frequently lack the budgets to provide such supplementary materials, and parents just are not able to provide them independently. The absence of such enriching learning materials can make a learning setting in which children are limited to traditional means of instruction—textbooks, worksheets, and lectures that may not be adequate to maximally enhance their intellectual development. According to Ovansa (2017), the

unavailability of diverse learning materials not only limits children from experiencing mathematics in a constructive way but also diminishes their interest in the subject. When students are not engaged through varied and dynamic methods, they might view learning as a passive and boring process, thereby leading to lowered retention rates and performance.

Moreover, this lack of stimulation has the potential to widen the gap in learning between children from lower- and higher-income families. While children from more privileged backgrounds are accessing online websites, attending after-school tutoring, or enrichment courses that stimulate and challenge them, their poorer peers are confined to completing basic work with minimal stimulation. Because of such disparities in learning activities, disparities in numeracy proficiency widen over time, with potentially long-term implications for academic and career aspirations. The issue must be addressed on multiple levels. Schools need to be supplied with more interactive and engaging learning materials suitable for different learning styles. Community-based interventions, such as after-school programs or partnerships with community agencies, can help provide children from lower socioeconomic backgrounds with access to more resources. Furthermore, policies promoting equitable funding for schools in low-income areas can ensure that all children, regardless of their socio-economic backgrounds, have the resources they need to succeed in mathematics and beyond.

According to Ovansa (2017), the traditional materials provided by schools do not meet the diverse learning needs of all students. Denied the opportunity to avail themselves of other resources, lower-income children are less likely to be exposed to interactive learning experiences, putting them at a disadvantage in the development of fundamental numeracy skills. This disparity not only affects their immediate academic success but

also reduces their future opportunities, illustrating the need for systemic change in the provision of equal access to learning materials for all children. The inequality in access to diverse educational resources for children from lower-income backgrounds not only creates learning gaps but also widens the socio-economic gap in relation to academic performance. While students belonging to more privileged families are typically in a situation to gain from technology, manipulatives, and a variety of instructional tools that render abstract concepts more tangible, students from less privileged backgrounds may have to rely solely on traditional methods such as textbooks and rote memorization. This limited exposure affects their ability to learn with intensity, especially for subjects such as numeracy, where hands-on learning materials can significantly enhance understanding. Children from more privileged backgrounds have access to interactive educational apps, online tutors, and enrichment activities that foster curiosity and problem-solving skills. These inputs give children a solid foundation in mathematics, allowing them to transfer learning easily to real-world applications. On the other hand, children from poorer families may not get the opportunity to enhance their learning with such interactive experiences, making them lag behind their peers. As time passes, this makes the achievement gap widen.

The impact of unequal access goes beyond academic performance. Attitude and motivation towards learning are also greatly influenced by access to resources for kids. When a child lacks exposure to stimulating learning material, they may become frustrated or disinterested in subjects like mathematics. This has the potential to create a cycle of disengagement, where the child struggles to catch up, falls behind even more, and can eventually lose faith in their ability to succeed academically. The long-term effect of this gap can be tremendous. Early success in numeracy is often linked to future academic achievement since mathematics underpins most subjects and skills. Those

students who start with a strong foundation in numeracy are more likely to achieve at higher levels of schooling, whereas those who fall behind early may be hard to catch up. This lowers their life opportunities in education and the workplace, reinforcing cycles of disadvantage and deprivation.

Chen, et al (2018) highlighted the importance of access to a variety of educational content and activities at an early age in developing strong numeracy foundations, highlighting the need to eliminate these disparities in access to educational materials. Without intervention, the socio-economic education gap will remain and continue to have long-term consequences for the individual and society. Poorer individuals face considerable challenges in providing their children with the full range of educational inputs necessary to attain good numeracy skills. Access to complementary learning tools, such as toys and computer software, is strongly differentiated by the financial resources of a household. This disparity in access can limit children's opportunities for learning and contribute to inequalities in numeracy skills development, highlighting the need for policies and interventions that promote equitable access to learning materials for all children, regardless of their socio-economic background (UNESCO, 2020).

In investigating the impact of different levels of parental income on the provision of resources for the development of numeracy skills in kindergarten students, it is evident that parental income has a great bearing on academic achievement. Parents are known to be key stakeholders in early childhood education, offering primary support and resources that are fundamental to the acquisition of key skills, including numeracy. Differences in family incomes result in variations in access levels to numeracy resources. The evidence suggests that families with higher incomes are more likely to afford a wider range of learning materials and activities to support learning. Financial capability enables them to invest in items such as learning toys, books, and information

technology devices designed to support and develop numeracy skills. For example, higher-income families can purchase interactive learning apps or enroll their children in additional educational programs, which can provide enriched learning environments and enable more effective numeracy development.

Lower-income families, on the other hand, have fewer financial resources to devote to accessing these beneficial resources. Due to budget limitations, these families might utilize older educational resources that are less varied and interactive. This restriction may create a less intellectually stimulating atmosphere that can suppress the development of numeracy abilities. Lower-income families can have fewer educational toys or digital apps and cannot afford additional educational activities or programs that can otherwise influence children's numeracy learning (Nyaphisi, 2021). Furthermore, the degree to which parents can engage in educational activities with their children is also based on their income. More economically advantaged families are more likely to have the financial security to be able to invest time and resources into their children's education. This could include things like visits to educational centres, educational games, and one-to-one support with numeracy activities (Gubbins & Otero, 2020). On the other hand, lower-income families may experience financial difficulty and may have less time to devote to these activities, which impacts their ability to support their children's numeracy development effectively (Nyaphisi, 2021). Various parental income levels have a significant bearing on the availability and quality of resources used to build numeracy skills in kindergarten children. More affluent families usually have access to a wider variety of educational resources and are able to invest more intensively in the early education of their children. Lower-income families, however, might have constraints that limit their access to such resources, which can impact the acquisition of numeracy skills. Redressing these inequalities is crucial to providing fair

educational opportunities and assisting all children to reach their full potential in early numeracy development.

Income levels profoundly affect the quality and variety of educational resources that are available for families. Low-income families tend to have a tighter financial situation that hinders them from being able to procure varied and quality educational materials. Such limitations have the potential to lead to overdependence on old and less interactive materials, which might fail to sufficiently foster the acquisition of numeracy skills (Ayala, 2020). For instance, families with less financial income will struggle to afford learning toys, books, and other materials that facilitate numeracy learning. However, middle-income families have greater financial flexibility, which allows them to provide a more conducive home learning environment. This includes access to a better variety of learning resources that are more likely to foster numeracy development (Gubbins & Otero, 2020). The disparity between the resources available to lower- and middle-income families highlights how financial stability can enhance the learning environment and contribute to improved educational outcomes.

Moreover, parental involvement in education often correlates with income levels. More prosperous families are better placed to invest time and resources in their children's education, including the purchase of educational materials, engaging in additional learning activities, and providing extra support for numeracy skills (Gubbins & Otero, 2020). This investment not only improves the learning experience but also promotes better educational achievement. Variations in parental income levels contribute significantly to the availability or lack of resources for acquiring numeracy skills among kindergarten children. Poorer families struggle to provide a variety of educational resources, which may impinge on the development of numeracy skills (Ayala, 2020). Middle- and higher-income families are more probable to provide a supportive learning

environment, showing the importance of targeted interventions for supporting poorer families and narrowing differences in access to educational resources.

4.5.3 Research Question Three: In what ways do parental educational background impact the numeracy development of the kindergarten learners?

Parental involvement in learning exercises and homework is an important role in the child's academic advancement, particularly in early childhood learning. The direction from the parent is that which assists in supporting ideas learned in school and offers a good learning environment at home. Educated parents are well aware of concepts in school, thus they are able to assist their children more so with homework and other learning procedures. This is the level of involvement that is most important since it not only enhances the child's knowledge of the material but also promotes a positive learning attitude, which sets the stage for a lifetime of academic success (Hirsch, 2019).

For instance, when parents have good numeracy, they can break down complex or abstract mathematics ideas into simpler and more understandable terms. They can utilize day-to-day uses of mathematics ideas, for instance, calculating fruits as they go to the shops or using fractions to prepare food, to help their children visualize and comprehend mathematics ideas. By using these uses of their experiences in schoolwork, parents can simplify difficult concepts and enhance their children's confidence working with them. This experiential learning, supported by parents who are familiar with the subjects, can play a significant role in a child's ability to comprehend and retain fundamental concepts (Dowker, 2021). In addition to helping children understand specific subjects like numeracy, parental involvement also helps develop critical thinking abilities. Through engaging with children in learning activities, parents promote questioning, problem-solving, and discovery. This not only helps in mental development but also helps children develop a deeper sense of awareness of what they

are learning. For example, parents can make their children explain how they came to a mathematics equation, thereby encouraging analytical minds and a deeper connection to the subject.

Also, the endorsement that children receive from parental involvement builds their confidence and motivation. When parents take an interest in their children's schooling, it sends a message that education is important and that it is time well spent. This encourages children to study harder at school and to be more interested in studying. For young children, especially, this support can be critical in building a strong foundation in basic subjects like mathematics and literacy, which are the building blocks for subsequent success at school. Differences between the levels of education of parents can lead to disparities in the level of assistance from home. Parents with less education or poor numeracy skills will not be able to provide the same level of support as better-educated parents. This, in turn, will lead to disparities in the capability of the children at school, in areas like mathematics where early intervention and reinforcement are specifically crucial. Therefore, children from families with lower-educated parents can be at an added disadvantage in having the ability to keep up with others.

It has been ascertained in studies that kids whose parents were more engaged with their education would perform better in school compared to kids whose parents were less involved. Parent involvement is linked to higher academic success, better school attendance, and better behaviour, according to Hirsch (2019). Having an adult present during homework time can help create a routine of learning, which helps develop discipline and focus in children. This intervention also allows parents to monitor their children's progress, identify areas they are falling behind, and step in and assist them in a good time.

Parental involvement goes beyond helping with homework. Well-educated parents are more inclined to talk to their children regarding school, provide more study resources, and present their kids to stimulating activities such as learning games and activities. These are not only stimulating a child's education but also shaping a love of learning that would last throughout his or her lifetime (Dowker, 2021). For instance, when parents discuss numbers, patterns, or shapes in everyday contexts, they help children value the use of these concepts in everyday life, thereby cementing their numeracy. Parental support through homework and study sessions plays a significant role in the academic performance of children, especially in early childhood education. Educated parents are generally more knowledgeable about educational principles and are in a better position to assist their children with homework and study tasks (Smith, 2020). This is significant because it not only aids schoolwork but also fosters a good learning culture at home. For example, numeric parents can present exact explanations and anecdotes, making it easier to define abstract concepts by making them tangible for younger kids (Dowker, 2021). Such an open involvement in education processes can aid children in internalizing analytical approaches and understanding critical concepts such as mathematics and reading.

Research has established that children whose parents are actively engaged in their school work perform better than children whose parents are less involved in their school work. Parental involvement has been linked with higher academic performance, better school attendance, and better behaviour by Hirsch (2019). Having an accompanying adult during homework can make learning systematic, thus promoting discipline and concentration among children. Such interaction also allows parents to monitor the progress of their children, identify where they may be faltering, and intervene and help early.

Parental engagement extends beyond just helping with homework. Educated parents are more able to speak about school, provide additional learning materials, and expose their children to enriching activities, such as educational games and activities. Such activities enrich the learning experience of children and instill an appreciation for learning that could last a lifetime (Dowker, 2021). For instance, when parents explain numbers, patterns, or shapes when dealing with daily life, they help children appreciate their usage in everyday life, thereby enhancing their numeracy. Apart from the cognitive benefits, parent involvement in learning also provides emotional support to the child. When parents become interested in their children's education, the children become more motivated and confident. The children feel encouraged and are willing to work harder knowing that their parents value their success (Smith, 2020). Such psychological support is particularly vital for young children who have not yet developed their self-esteem and confidence in their abilities. A motivated and supportive parent can create a safe space for children to try out new ideas, get things wrong, and learn from failures, all of which are the secrets of effective learning.

Moreover, parents who are well educated tend to act as role models for learning in general. When children observe their parents reading, solving problems, or participating in educational dialogue, they are more likely to follow suit. This positive modeling of attitude through education can facilitate the development of a growth mindset among children, where they understand that their abilities can be developed through effort and dedication (Hirsch, 20199). This mindset is crucial for long-term academic success and can help children overcome challenges and persist in the face of adversity.

The active participation of educated parents in the education of their children has both cognitive and affective benefits that are the cornerstones of early education. By

reinforcing school concepts, providing additional resources, providing emotional support, and demonstrating a love for learning, parents play a vital role in shaping the educational outcomes and experience of their children. This integrated support can form the foundation for long-term academic achievement and lifelong love of learning (Hirsch, 201).

Second, access to educational materials is another key to a child's education and development. Parents who have a better educational level and employment level tend to be in better economic standing, which enables them to invest more learning materials in their children. These materials can include toys, computers, magnets, boards, and other learning aids that offer different channels through which children may engage with learning resources. These materials are not ancillary; they can provide learning experiences that surpass classroom learning. For instance, learning toys can spark the imagination and curiosity of a child, while technology like tablets and computers can provide interactive learning experiences. These materials are particularly valuable for developing numeracy, as they often come with learning applications and games that render learning engaging and enjoyable.

Evidence attests to the importance of learning material access in optimizing learning performance. Jones (2020) found that children exposed to various learning resources at home academically perform better than those who do not have access to these learning resources. These tools allow children to find things out and learn for themselves, at their own pace, building on the learning they are getting in school and allowing them to delve deeper into topics of special interest. For example, digital technology can offer customized learning opportunities that adapt to a child's level of understanding, providing instantaneous feedback and encouraging enhancement in numeracy and other areas. Apart from that, tactile resources like magnets and educational boards can also

help children improve their fine motor skills and spatial relationship awareness, further adding to their general cognitive development. Through investment in these materials, parents are able to offer an enriching home learning environment that enhances and supplements the learning of their children, building a sound basis for later academic success.

Socio-economic factors have a significant influence on levels of educational attainment. The parents with higher education and well-established, good-paying jobs are better positioned to create a learning environment in the home that leads to better educational outcomes for their children. These families are typically better positioned to provide resources, support, and a stable environment that allows for more robust learning experiences for their children. For parents who have lower levels of education, however, they may not be in a position to offer the same level of support since they do not have the means and resources, and this can adversely affect the children's performance, particularly in numeracy.

This is corroborated by earlier literature, where socio-economic status has been considered a key determinant of academic performance (Dowker, 2021). Poor families usually experience barriers in the guise of limited time, no resources, and reduced educational capital, all of which may hinder children's educational development. These create a cycle with reduced socio-economic status and the ensuing worse outcomes.

Finally, the argument extends to general education equity consequences. Support of children's education by their parents relies heavily on parents' education background and socio-economic status, therefore an upward cycle that subjects the less educated and poor families to fewer forms of school support for their children. The same serves to further reinforce socio-economic disparities as well as social immobility, as per

research in the field of education inequality (Hirsch, 2019). Closing these gaps requires targeted interventions and support to ensure that all children, regardless of their parents' level of education, can establish strong foundation skills in kindergarten. Parent's response from the report is a stark illustration of the influence of parental education and socio-economic status on early childhood numeracy development. The results concur with existing literature, and the significance of educational equity and support to families from diverse backgrounds is highlighted.

The controversy has serious implications for educational fairness. The parents' capacity to support their children in education directly correlates with the parents' education level and socio-economic status. This creates a cycle where children from homes with lower socio-economic status and educational levels end up being disadvantaged and receiving fewer education resources in the home. This support imbalance can perpetuate socioeconomic inequality and restrict social mobility, as highlighted in educational inequality studies (Hirsch, 2019). Unless checked, these systemic inequalities can lead to long-term educational and economic disadvantage for children who grow up in disadvantaged backgrounds.

The response excellently illustrates the impact of parental socio-economic status and education on early childhood numeracy development. The findings support the literature, which reinforces the need for targeted intervention and equitable interventions. To break the cycle of educational disadvantage, there needs to be initiatives put in place that provide all children, regardless of parental education level, with the tools and assistance necessary to build strong foundation skills in kindergarten. Attacking these issues ahead of time can assist in lessening the effect of socioeconomic differences on learning outcomes and advancing more equity in education.

Higher-educational background parents are far more active in choosing high-quality educational institutions for their kids. This activeness is heavily embedded in their capacity to notice and value the factors that make up a high-quality learning setting. Stronge's (2018) research portrays that such parents have a better chance of identifying the most important factors that contribute to good education. Those include the qualification of teachers, provision of learning amenities, and the overall quality of the learning environment.

Educated parents are well aware of what makes a good learning environment. They are more likely to take diligent consideration and list great schools with great academic offerings, compassionate educators, and engaged curricula. The choice-making is driven by awareness of the long-term payoff of a well-founded education. Wolf & McCoy (2019) also found that these parents are more apt to invest additional resources in enhancement materials that build upon their kids' formal schooling. This can be by educational resources, extracurricular activity, and tutoring, and all of these add to a more complete learning experience, especially in numeracy. Their active participation contributes to some extent towards forging a greater and more integrated school education, where children benefit from quality education and from additional provision that enhances their learning.

Furthermore, more-educated parents place a high emphasis on numeracy skill. They would be more inclined to appreciate the significant role early numeracy needs to play in their children's lives and work towards actively engaging them in everyday routines. They could do so by participating in numeracy development activities like educational games, linking mathematics concepts with daily life contexts, or the use of education software. Their engagement is most essential in encouraging positive attitudes toward mathematics and raising the numeracy abilities of their children at a very young age.

Research consistently justifies the presumption that a parent's numeracy profile has a positive impact on learning within the home setting. Şengönül's, (2022) findings indicate parents with higher levels of educational attainment will be more actively involved with their children in learning activity and explain and extend what is being learned within the school curriculum. This participation does not end with offering a nurturing atmosphere but also continues into being active in activities that strengthen and reinforce school learning. Well-educated parents tend to have a greater awareness of good teaching concepts and resources. They can draw upon their professional skills to produce deep learning moments at home, say, through the inclusion of numeracy games within the educational process, mathematics-related conversation brought into everyday living, or provision of practice supported by the course covered in school. This practical participation bridges the gap between homework and school.

Hammond (2021) emphasized that parents' involvement like this not merely boosts but cultivates academic progress. When parents are engaged in their children's learning, they help reinforce and consolidate the numeracy concepts and skills learned at school. For numeracy, this can be achieved by performing simple arithmetic operations, solving mathematics problems encountered in daily life, or using tools and resources that promote mathematics thinking. This reinforcement helps children to consolidate their application and knowledge of numeracy concepts, which translates to their academic success.

Parent involvement in home schooling also directly contributes to motivating children's learning attitudes. The children are likely to enjoy learning and have confidence in themselves when they see their parents valuing and participating in the schooling process. This type of motivation leads to improved grades in school assignments and greater enthusiasm for subjects like mathematics. Active parental support also increases

overall cognitive growth and emotional development. Children who are exposed to engaged parenting are likely to acquire good problem-solving skills, critical thinking, and resilience when faced with academic difficulties. It should be noted that home learning is not always as effective as school-based learning and depends on the quality of parent-child interactions. Literature shows that while home learning is beneficial, its effectiveness depends on the education level of the parents and the quality of their interaction with their children (Sylva et al., 2004). Educated parents are likely to provide a controlled and supportive home learning environment, and this has a positive impact on their children's numeracy.

Furthermore, the role of economic status and social status in the investment of parents in education also plays a vital part. Bradley (2019) studies reveal that such families with greater economic means are better placed to afford more stimulating educational experiences and opportunities. More educated and higher-income parents are able to buy more educational activities, for example, extracurricular activities and education materials. This financial capacity also helps to further develop numeracy skills and creates a more enriched educational experience for their kids.

The parents with higher levels of education have a great impact on the numeracy development of their children. Their active participation in selecting good quality learning institutions, investing in extra resources, and actively taking part in home-based learning creates an enabling environment that enhances the numeracy skills of their children and their overall performance at school.

The parents with higher levels of education are likely to demonstrate greater involvement in the education of their children, especially in the development of numeracy skills. Their advanced educational attainment provides them with a very high

degree of sophistication in perceiving the critical role that numeracy plays in their children's intellectual and academic development. They are aware that numeracy transcends mere arithmetic to encompass critical thinking, problem-solving, and everyday decision-making. Educated parents realize that numeracy competencies are a precursor for various subject success in school and helpful for day-to-day functions such as budgeting or measurement. This heightened awareness makes them assign great importance to numeracy in their children's learning process, ensuring that these competencies are well-developed from an early age.

Apart from this, the greater educational level among parents influences their mode of creating rich learning environments at home. They are likely to introduce educational materials and resources that support numeracy development, such as specialized books, interactive digital programs, and educational toys that are designed to encourage mathematics thinking. Stronge, (2018) studies indicate that such parents not only seek high-quality educational resources but also engage in activities that support their children's numeracy skills. This can involve integrating mathematics discussion into daily habits and facilitating possibilities for applied learning of mathematics. Their proactive participation and knowledge-oriented attitude ensure an encouraging climate that strengthens numeracy skills among their children, helping them overall as well as develop cognitively.

Parents with education assist the numeracy growth of their children by designing an affluent and conducive home study climate. They will be more inclined to introduce a diverse range of learning materials adapted to promote mathematics thinking. These can include study books that cover a range of mathematics issues from basic counting to complicated problem-solving. As McCoy et al. (2019) posited, not only do such books help children learn and apply mathematics ideas, but they do so in a manner that

is engaging as well as appropriate for the level of development. Such provision enables children to interact with numeracy in a variety of settings, and therefore learning becomes both fun and effective. In addition to learning books, however, educated parents also include other resources and tools that support numeracy development. Such materials may involve the use of learning games, computer applications, and interactive toys that introduce children to mathematics concepts through play. Such materials provide children with hands-on experience that supports their learning of mathematics concepts. Integrating these tools into everyday life, educated parents create an engaged learning environment where numeracy is incorporated naturally in various activities. This approach not only enhances the mathematics skills of kids but also fosters a constructive attitude towards learning. The combination of challenging study material and participative sessions plays a gigantic part in developing fine numeracy skills, laying strong foundations for academic brilliance in the future.

In addition to books for learning, educated parents also tend to employ digital applications that are designed to enhance numeracy. These applications offer interactive and fun ways for children to rehearse mathematics, typically in the form of games and activities that are aligned with what they are learning at school. It has been highlighted through a study conducted by Cheung et al. (2021) that all these digital applications can make it more enjoyable and effective to practice mathematics by providing immediate feedback and adapting to the child's level. Through such apps, mathematics concepts can be learned by kids in an engaging manner, thereby reinforcing their concepts as well as making them engage with the subject. The use of technology in this way helps to bridge the gap between learning in the classroom and interactive independent practice. Numeracy development is also aided by educational toys. Parents with higher education are more likely to make use of toys such as building

blocks, puzzles, and counting games for play. These toys are not just a source of entertainment, as they assist in developing essential skills like spatial awareness, problem-solving, and basic arithmetic. According to Clements (2022), the toys allow children to construct mathematics knowledge through engaging and playful encounters. When these instruments are incorporated into the daily life of the child, the parents help children establish a foundation in numeracy through fun activities, where learning is not only an enjoyable activity but also effective.

Besides, educated parents will be actively involved in their children's learning process, which further enhances their numeracy development. They might engage in mathematics-based games, solve problems together, or incorporate mathematics into daily activities such as cooking or shopping. Active involvement ensures that mathematics becomes part of daily life and reinforces the mathematics concepts learned at school. For instance, parents may involve their children in reading recipe ingredients or computing the overall price of items during shopping, thereby relating mathematics proficiency to practical experiences. Hirsch (2019) points out from research that the active engagement boosts performance because the children learn to follow what they see their parents respect and put into practice in school. Studies consistently show that children whose parents are engaged in their education perform better in school (Sylva et al., 2004). The nurturing and stimulating home environment created by educated parents creates a positive attitude towards mathematics and contributes significantly to their children's overall academic performance. Parents with higher levels of education play a significant role in their children's numeracy development. Their ability to identify the importance of numeracy and activity in providing educational material and participating in learning activities is a significant contributor to their children's academic success (Cheung et al., 2021). This participatory approach encourages and

supports children's learning, which results in lifelong mathematics interest and intellectual growth.

4.5.4 Research Question Four: How do parents' occupations shape their engagement in supporting numeracy activities for kindergarten learners?

The relationship between parents' occupations and the acquisition of numeracy skills in children is strongly correlated with the level of time and resources available to parents for their children's education. Parents who work well-paid and high-status jobs tend to have greater financial resources, which are reflected in a greater ability to pay and provide a range of several educational tools and materials favouring numeracy development. This economic capacity allows them to purchase specialized learning materials, such as books that deal with an array of mathematics concepts, interactive computer software, and educational toys specifically designed to engage and advance mathematics thinking. For instance, quality learning books may help children grasp challenging numeracy concepts in an enjoyable and developmentally appropriate manner (Buck, 2024). Similarly, educational toys like building blocks and number games are designed so that learning mathematics can be fun and effective, and this can be a long way in helping with early numeracy development.

Computer applications offering interactive mathematics games are also a significant resource made more accessible by parents with higher-status occupations. Such programs typically have feedback that is provided in real-time, in addition to learning experiences that are tailored and change according to a child's developing skill level, further intriguingly solidifying their numeracy skills (Cheung et al., 2021). Such parents' capacity to invest in such technologies ensures that children are able to engage with mathematics in various and interactive manners, which makes the learning process more dynamic and compatible with contemporary education methods. This exposure to

varied and quality resources not only strengthens the numeracy ability of children but also enriches their learning process as a whole, resulting in a stronger base in mathematics abilities. Hence, parents' occupation status is a significant consideration for deciding the learning environment and resources children are exposed to, affecting their numeracy ability and academic performance in general.

In addition to being exposed to a broad spectrum of learning materials, parents with high status employment also have greater flexibility in their working hours. This flexibility allows them to invest more time in actively engaging with the learning activity of their children. Financial security through high-paying employment allows such parents to be more fully involved in the education endeavour of their children. For example, they can integrate numeracy into everyday activities, for example, involving children in cooking by applying ingredients to measure or in shopping by totalling the amount and providing change (Hammond, 2021). This active engagement not only reinforces numeracy skills but also introduces children to the practical use of mathematics, making learning relevant and engaging.

On the other hand, parents who come from lower-income backgrounds often have significant challenges that can make it difficult for them to offer numeracy support to their children. Economic constraints might limit their access to good-quality learning materials like specialized books, computer programs, and learning toys. Additionally, hectic work schedules may limit the amount of time available to them to engage in learning activities with their children. This time and resource deficit can lead to weaker or less effective support for numeracy development, thereby creating a gap in the quality of educational support accessed by children. Consequently, parents' economic and time-related challenges in lower-income groups can have a negative effect on their children's numeracy skills and academic performance. This gap illustrates the influence

of parental occupation on the quality and accessibility of children's education and care, demonstrating how occupational status can have a significant influence on numeracy attainment and academic achievement. Their responses demonstrate that pressures at work have a significant influence on the time parents have available to spend on their children's education. Parents with stressful work, especially long hours or shift work, are likely to struggle in engaging with children's learning. Literature points out that the time constraints posed by such deadlines can limit parental participation in numeracy activities that are important for reinforcing mathematics skills and promoting an attitude towards positive numeracy. Consistent participation of parents is essential to facilitating children's development in numeracy, and a disruption in it can lead to gaps in children's mathematics (Panaoura, 2021).

The level of resources available, which is greatly dependent on the jobs held by the parents, is also of significant importance. Better-paying jobs will generally translate into better salaries, which allow parents to spend on textbooks, private tutoring, and other enriching extracurricular activities. Parents who work in professional or managerial jobs are more likely to spend on sophisticated educational equipment and gadgets, e.g., mathematics-focused software, books, and interactive learning websites. These materials are necessary to create an interesting home setting supportive of numeracy development (Burt & Johnson, 2018). Low-income parents with lower-earning jobs may struggle to provide these materials, creating inequality in numeracy achievements. The study inevitably illustrates that lower socio-economic status children, whose parents are likely to have less stable or lower-paying jobs, may not have access to the same level of learning materials and activities as their wealthier peers (Nyaphisi, 2021). Such a restriction in resources can hinder their numeracy development and promote an increasing gap in attainment.

The quality of the home learning environment is another important consideration. Parents who have flexible working hours or parents whose working lives afford work and life a balance are more likely to create a rich learning environment in their homes. It not only requires provision for learning to be readily available, but also learning through activities such as number-based games, homework aids, and developing mathematics through habits. Research identifies that such participation is critical in setting a firm groundwork for numeracy skills among pre-school children (Jones, 2024). Alternatively, mothers with busy or inflexible employment may not have the capacity to create an adequate learning environment in the home environment. Infrequent parental involvement due to work obligations can lead to less frequent engagement in numeracy activities, which influence the numeracy ability of the child (Cheung et al., 2021).

Socio-economic factors more broadly also play a central role in understanding how parents' jobs influence their children's numeracy capacity. Jobs decide wages and influence schooling and attitudes toward schooling. Parents who are employed in higher-status occupations have more developed educational backgrounds, which equip them with better knowledge and skills to help their children learn numeracy. These parents are likely to value education and invest time and money in enhancing their children's academic performance, including numeracy (Kyeremeh & Dorwu, 2022). Parents employed in lower-status or less stable occupations are not only likely to be financially constrained but also have lower educational levels. This can influence their self-efficacy in facilitating children's learning of numeracy and their ability to implement effective education practices in the home. Studies show that parents with poorer educational qualifications may lack confidence to assist with activities for

numeracy, thus influencing numeracy development for their children (Sabri et al., 2020).

Parents' jobs and encouraging numeracy skills in children is a complex interplay. It addresses the impact of work requirements, resource availability, quality of home learning environment, and broader socio-economic conditions. Parents with higher-status, better-paid occupations are generally in a position to better support their children's numeracy development through greater resource availability, more flexible work patterns, and higher educational attainment. Conversely, parents working in lower-status or more stressful occupations may have very little ability to provide the same level of support, and inequalities in numeracy attainment among children result. Such inequalities require certain interventions and policies that will support parents working in lower-status occupations, grant equal access to resources, and facilitate a supportive home learning environment for all children, regardless of their parents' occupation.

The observation by the parent offers intriguing information regarding parents' work and how this applies to building numeracy skills among children. Keeping up with a challenging career and home life is challenging, yet this parent emphasizes the importance of effective planning in addressing both work and involvement in their children's education. A balance between these conflicting demands is essential in developing numeracy skills, which requires constant effort and dedication. Evidence shows that where parents can effectively balance work requirements with home-based learning support, this positively contributes to the education of their children. Effective time management allows parents to engage in activities such as helping with homework, playing numeracy games, and incorporating learning activities into day-to-day routines, all of which are pivotal in building numeracy skills (Cheung et al., 2021).

The parent also mentions the need for a "cool and serene" home setting to support their children in numeracy practice. Such an environment is particularly necessary for mental exercises like numeracy, which require concentration and attention. A peaceful environment can enhance a child's ability to solve mathematics problems and acquire new knowledge, leading to better learning outcomes. The nature of such a home environment can be derived from the parents' type of work. As an instance, a stressful career might not present room for harmony at home, while a parent with more work-life balance management control can give room for a better such environment (Jones, 2024). Despite the presence of an engaged working parent, parental ability to foster a peaceful domestic setting translates to the impact of parental work on children's numeracy achievement residing beyond family earnings to home environments' educational quality.

This is indicative of the fact that while a parent's professional life may limit personal time for involvement in a child's education, good planning and the capacity to build a conducive home environment can offset such challenges. Parents who harmonize career responsibilities with active involvement in the education of their children and have a supportive family environment can more effectively guarantee numeracy performance in the children (Kyeremeh & Dorwu, 2022). This methodology underpins the argument that the occupations of parents and the cultivation of numeracy are multifaceted. It is not a case of merely the economic capital which higher status work can generate, but of time management and conditions within the environment which parents, irrespective of occupation, can affect. Even in highly pressurized professions, parents with an inclination for their children's education and a quality learning atmosphere at home can play a positive role in the numeracy skills of their children (Cheung et al., 2021).

The experience of the parent highlights the importance of time management and the domestic environment in the relationship between parents' jobs and the acquisition of numeracy skills. While challenging work can pose challenges, a well-planned approach and a harmonious home setting can do much to give children the support they require for their numeracy development. This shows that parental occupation's influence on numeracy skill is not solely based on material resources but also on the quality of time and the home setting that parents offer (Jones, 2024; Kyeremeh & Dorwu, 2022).

CHAPTER FIVE

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the summary, conclusions drawn from the findings, and recommendations. The study aimed to explore the influence of parental income levels, educational backgrounds, occupations, and social status on the development and fostering of numeracy skills in kindergarten learners.

5.1 Summary

The following were the findings revealed by the study:

This study examined the influence of parental socio-economic background on fostering numeracy activities among kindergarten learners in the Shama Circuit of Ghana. It was guided by Bronfenbrenner's Ecological Systems Theory and adopted an interpretivist paradigm, using a qualitative exploratory case study design to gain an in-depth understanding of parents' experiences and perceptions.

The study was conducted in selected schools within the Shama Circuit. The target population comprised parents of kindergarten learners. Using purposive sampling with maximum variation, twelve (12) parents from low-, middle-, and high-income backgrounds were selected. Data were collected through semi-structured interview guides, which enabled parents to share their views on how income, education, occupation, and social status influenced their involvement in their children's numeracy development. The data were transcribed, edited, and analysed using thematic analysis, involving coding, categorisation, and interpretation of emerging themes.

The study was guided by four research questions focusing on parents' perceptions of social status, financial experiences, educational background, and occupation in relation to children's numeracy development.

Findings revealed that parental income significantly influenced access to numeracy resources such as books, games, private tutoring, and extracurricular activities. Parents with higher income levels were better positioned to provide consistent numeracy support. Parental educational background shaped parents' confidence and involvement in structured numeracy activities, with educated parents demonstrating greater awareness of the importance of early numeracy skills and using varied methods, including books, apps, and games. Parental occupation influenced both time availability and the ability to provide practical numeracy support, particularly for parents in mathematics-related professions who could offer real-life examples of numeracy use. Additionally, parents' social status affected their access to educational networks, workshops, learning materials, and support systems, with parents of higher social standing enjoying greater opportunities than those with lower social status.

The study concludes that parental socio-economic background plays a significant role in fostering numeracy activities among kindergarten learners in the Shama Circuit. It recommends targeted parental support programmes, improved access to numeracy resources, and policies aimed at reducing socio-economic inequalities in early childhood education.

5.2 Conclusions

This study shows that parental income, education, occupation, and social status play important roles in how parents support the numeracy development of their kindergarten

children. These factors influence the type of resources, opportunities, and learning experiences available to children at home.

Parents with higher income levels had better access to educational materials, private tutoring, and extracurricular numeracy activities, while lower-income parents faced financial limitations but still supported learning through informal activities such as counting household items. Parental education influenced parents' awareness of the importance of early numeracy, with educated parents more likely to engage in structured activities using books, games, and digital tools, while less educated parents relied on basic everyday practices.

Parental occupation also affected numeracy support, as parents in mathematics-related professions provided practical, real-life examples of numeracy use. Additionally, social status influenced access to educational networks, workshops, and learning materials, with higher-status parents enjoying greater support opportunities than lower-status parents.

Overall, the findings indicate that although socio-economic differences affect the level and type of numeracy support parents can provide, parents across all backgrounds actively contribute to their children's numeracy development using the resources available to them.

5.3 Recommendations

Based on the key findings from this study, the following recommendations are made:

- Parents across all socio-economic backgrounds, especially those with moderate to high income, should invest part of their earnings in basic numeracy learning materials such as counting cubes, number lines, and interactive books. These materials promote experiential learning and help children understand numbers,

patterns, and basic mathematical concepts. Parents should select age-appropriate materials to make learning engaging and meaningful.

- Parents with limited educational backgrounds, as well as those who feel less confident in mathematics, should actively improve their numeracy knowledge by attending adult education programmes or using online learning resources. Regular practice with basic mathematics activities at home will enable them to support their children more effectively.
- Working parents, particularly those in mathematics-related professions, should integrate numeracy into their daily work and home activities. Using real-life examples such as money, time, measurement, and counting helps children understand the practical importance of numeracy.
- All parents, regardless of income or social status, should create a positive numeracy learning environment at home by engaging children in numeracy games, discussions, and storytelling. Parents should also collaborate with other parents, share good practices, and advocate for equal learning opportunities within their communities to ensure inclusive access to quality numeracy education.

5.4 Suggestions for Further Research

Based on the findings, the following areas were suggested for future research:

1. Future research could explore interventions aimed at mitigating the disparities in supporting numeracy development, especially in households where parental involvement is limited due to work or education constraints.

2. Future research could explore the effectiveness of targeted parental education and support programs aimed at low-income and less-educated families. These studies

might help bridge the gap in early numeracy skills among children from different socio-economic backgrounds.

3. Further studies could investigate how cultural beliefs and social norms in different communities' shape parents' perceptions of the importance of early numeracy and culturally sensitive approaches to encouraging numeracy development across various socio-economic and cultural groups.

REFERENCES

Abella, J., Kilag, O. K., Andrin, G., Tañiza, F. N., Groenewald, E., & Cordova, N., Jr. (2024). Benchmarking literacy and numeracy: The contributing elements. *Excellencia: International Multi-disciplinary Journal of Education*, *2*(1), 90–99.

Abella, M., Cruz, J., & Dela Fuente, R. (2024). Early numeracy skills and their long-term impact on academic success. *Educational Research Journal*, *39*(2), 112–128.

Abella, V., Stone, E., & Thomas, J. (2024). Promoting inclusive education in resource-limited contexts: Strategies and outcomes. *International Journal of Inclusive Education.* (in press or DOI if available)

Agasisti, T., & Maragkou, K. (2023). Inequalities in education: New evidence from European countries. *European Journal of Education, 58*(1), 5–24. https://doi.org/10.1111/ejed.12489

Agasisti, T., & Maragkou, K. (2023). Socio-economic gaps in educational aspirations: Do experiences and attitudes matter? *Education Economics*, *31*(4), 471–487.

Ainscow, M. (2020). Addressing educational disparities: Socio-economic status and early numeracy development. *International Journal of Education and Development*, *45*(3), 210–225.

Anderson, J. (2024). Language teacher expertise research: A theoretical case and research agenda. *Language Teaching*, 1-18.

Bal, A. (2018). Culturally responsive positive behavioral interventions and supports: A process–oriented framework for systemic transformation. *Review of Education, Pedagogy, and Cultural Studies*, *40*(2), 144-174.

Bierman, K. L., & Sanders, M. T. (2021). Teaching explicit social-emotional skills with contextual supports for students with intensive intervention needs. *Journal of Emotional and Behavioral Disorders*, *29*(1), 14–23.

Bonifacci, P., Barbieri, M., Tomassini, M., & Roch, M. (2021). Socioeconomic status and cognitive development: An updated review of the literature. *Frontiers in Psychology, 12*, 671586. https://doi.org/10.3389/fpsyg.2021.671586

Bonifacci, P., Compiani, D., Affranti, A., & Peri, B. (2021). Home literacy and numeracy interact and mediate the relationship between socio-economic status and early linguistic and numeracy skills in preschoolers. *Frontiers in Psychology*, *12*, Article 662265

Boonk, L., Gijselaers, H. J. M., Ritzen, H., & Brand-Gruwel, S. (2018). A review of the relationship between parental involvement indicators and academic achievement. *Educational Research Review, 24*, 10–30. https://doi.org/10.1016/j.edurev.2018.02.001

Bourdieu, P. (1986). The forms of capital. In J. G. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Greenwood Press.

Bradley, R. H. (2019). Environment and parenting. In *Handbook of parenting* (pp. 474-518). Routledge.

Bruszt, L., & Langbein, J. (2020). Manufacturing development: How transnational market integration shapes opportunities and capacities for development in Europe's three peripheries: Introduction to the special issue. *Review of International Political Economy*, *27*(5), 996–1019.

Bryman, A. (2012). *Social research methods* (4th ed.). Oxford University Press.

Buck, A. (2024). *A phenomenological study: The academic experiences of low-socioeconomic-status ESL learners enrolled in a mid-sized urban community college* [Unpublished doctoral dissertation].

Burt, B. A., & Johnson, J. T. (2018). Origins of early STEM interest for Black male graduate students in engineering: A community cultural wealth perspective. *School Science and Mathematics*, *118*(6), 257–270.

Caro, D. H. (2018). Socio-economic gaps in subject interest: The mediating role of parental cognitive involvement. *Large-Scale Assessments in Education*, *6*(1), Article 13.

Casteel, A., & Bridier, N. L. (2021). Describing populations and samples in doctoral student research. *International Journal of Doctoral Studies*, *16*, 315–332.

Cheadle, J. E. (2008). Educational investment, family context, and children's mathematics and reading growth from kindergarten through the third grade. *Sociology of Education, 81*(1), 1–31. https://doi.org/10.1177/003804070808100101

Chen, B., Bae, S., Battista, M., Qin, H., Chen, Z., Evans, C., & Menon, R. (2018). Understanding the role of teachers in fostering collaborative learning. *Educational Psychology, 39*(5), 611–628. https://doi.org/10.1080/01443410.2018.1482024

Cheung, A. C. K., Slavin, R. E., Kim, E., & Lake, C. (2021). Effective early childhood mathematicsematics programs: A meta-analysis. *Early Education and Development, 32*(5), 741–761. https://doi.org/10.1080/10409289.2020.1820764

Cheung, S. K., Dulay, K. M., Yang, X., Mohseni, F., & McBride, C. (2021). Home literacy and numeracy environments in Asia. *Frontiers in Psychology*, *12*, Article 578764.

Clements, D. H. (2022). *Learning and teaching early mathematics: The learning trajectories approach* (3rd ed.). Routledge.

Clements, M. (2022). *Fostering a conceptual understanding approach to teaching the arithmetical operations* [Unpublished manuscript].

Clerkin, A., & Gilligan, K. (2018). Parental involvement and early numeracy skills: Examining socio-economic differences. *European Journal of Early Childhood Education*, *12*(1), 75–92.

Clerkin, A., & Gilligan, K. (2018). Pre-school numeracy play as a predictor of children's attitudes towards mathematics at age 10. *Journal of Early Childhood Research*, *16*(3), 319–334.

Cohen, L., Manion, L., & Morrison, K. (2018). *Research methods in education* (8th ed.). Routledge. https://doi.org/10.4324/9781315456530

Cresswell, J. (2013). Qualitative inquiry & research design: Choosing among five approaches.

Dearing, E., Kreider, H., Simpkins, S., & Weiss, H. B. (2006). Family involvement in school and low-income children's literacy: Longitudinal associations between and within families. *Journal of Educational Psychology, 98*(4), 653–664. https://doi.org/10.1037/0022-0663.98.4.653

Denzin, N. K., & Lincoln, Y. S. (2011). *The SAGE handbook of qualitative research* (4th ed.). SAGE Publications.

Dowker, A. (2021, February). Home numeracy and preschool children's mathematical development: Expanding home numeracy models to include parental attitudes and emotions. In *Frontiers in Education* (Vol. 6, Article 575664). Frontiers Media SA.

Duncan, G. J., Magnuson, K., & Votruba-Drzal, E. (2014). Boosting family income to promote child development. *The Future of Children, 24*(1), 99–120. https://doi.org/10.1353/foc.2014.0008

Duncan, G., Kalil, A., Mogstad, M., & Rege, M. (2023). Investing in early childhood development in preschool and at home. In E. A. Hanushek, S. J. Machin, & L. Woessmann (Eds.), *Handbook of the Economics of Education* (Vol. 6, pp. 1–91). Elsevier.

Elliott, L. E. (2019). *How Low-SES Parents Support Children's Academic Skill Development* (Doctoral dissertation, University of Pittsburgh).

Flynn, M. (2021). Understanding educational inequalities in early childhood: Challenges and policy responses. *Education Policy Analysis Archives, 29*, 55. https://doi.org/10.14507/epaa.29.5487

Gal, I., Grotluschen, A., Tout, D., & Kaiser, G. (2020). Numeracy, adult education, and vulnerability: A critical perspective. *ZDM–Mathematics Education, 52*, 573–584. https://doi.org/10.1007/s11858-020-01171-7

Gaskin, C. J., & McAllister, L. (2018). Supporting students with disabilities in higher education: A review of evidence-based practices. *Journal of Postsecondary Education and Disability, 31*(2), 147–161.

Gasson, S. (2004). Rigor in grounded theory research: An interpretive perspective on generating theory from qualitative field studies. In M. E. Whitman & A. B.

Woszczynski (Eds.), *The handbook of information systems research* (pp. 79–102). IGI Global.

Ghazali, A., Abdullah, N., & Hassan, R. (2021). Examining the impact of online learning on students' performance. *International Journal of Educational Research, 53*, 45–57. https://doi.org/10.1016/j.ijer.2021.02.003

Ghazali, M., Mustafa, Z., Rashid, R. A. A., & Amzah, F. (2021). Parental involvement in young children's learning of numeracy. *International Journal of Learning, Teaching and Educational Research, 20*(1), 199–222. https://doi.org/10.26803/ijlter.20.1.11

Ghazali, S. R., Abdullah, F., & Muhammad, S. (2021). Parental involvement and children's academic achievement: A study among Malaysian students. *International Journal of Academic Research in Business and Social Sciences, 11*(7), 328–340. https://doi.org/10.6007/IJARBSS/v11-i7/10144

Goldsmith, L. J. (2021). Using framework analysis in applied qualitative research. *The Qualitative Report, 26*(6), 1921–1933. https://doi.org/10.46743/2160-3715/2021.5011

Gorard, S. (2013). *Research design: Creating robust approaches for the social sciences*. SAGE Publications.

Greenstein, L., & Nita, G. (2024). 21st-century assessment practices: Innovations and challenges. *Educational Assessment, Evaluation and Accountability, 36*(1), 17–32. https://doi.org/10.1007/s11092-023-09423-6

Gubbins, E. J., & Otero, T. A. (2020). Understanding educational resilience: Theory and practice. *Journal of Advanced Academics, 31*(1), 50–77. https://doi.org/10.1177/1932202X20935136

Gubbins, V., & Otero, G. (2020). Parental involvement and low-SES children's academic achievement in early elementary school: New evidence from Chile. *Educational Studies, 46*(5), 548–569. https://doi.org/10.1080/03055698.2019.1692687

Hafni, R. M., Hidayat, R., & Chandra, W. (2020). The effect of parental involvement on children's academic achievement. *International Journal of Instruction, 13*(4), 683–694. https://doi.org/10.29333/iji.2020.13442a

Hastings, R. P., Allen, R., & McDermott, K. (2020). Special education teachers' well-being: The role of resilience and work environment. *European Journal of Special Needs Education, 35*(2), 217–230. https://doi.org/10.1080/08856257.2019.1652436

Hirsch, E. D. (2019). *Why knowledge matters: Rescuing our children from failed educational theories*. Harvard Education Press.

Hodgen, J., Foster, C., Marks, R., & Brown, M. (2018). *Evidence for review of mathematics teaching: Improving mathematics in key stages two and three*. Education Endowment Foundation.

https://files.eric.ed.gov/fulltext/EJ1143838.pdf

Jacob, B., & Ludwig, J. (2008). Improving educational outcomes for poor children.

Jeynes, W. H. (2005). A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement. *Urban Education, 40*(3), 237–269. https://doi.org/10.1177/0042085905274540

Johnson Wilder, C., Jarman, D., & Rowe, V. (2020). Inclusion of students with disabilities: A review of attitudes and beliefs. *International Journal of Inclusive Education, 24*(6), 595–610. https://doi.org/10.1080/13603116.2018.1508296

Jones, D. (2024). *Effective teaching strategies in diverse classrooms*. Routledge.

Jones, E. (2020). *Parent home-based literacy activities with third-grade students* (Doctoral dissertation, Walden University).

Kapur, R. (2018). *Research methodology: Methods and strategies*. Learning World.

Kisiang'ani, E. (2018). Socio-economic status and its influence on academic performance among primary school pupils. *International Journal of Education and Research, 6*(5), 113–124.

Koca, F. (2022). Motivation to learn and student engagement: The role of parenting styles. *Journal of Education and Learning, 11*(1), 14–22. https://doi.org/10.5539/jel.v11n1p14

Kong, S., & Yasmin, F. (2022). Family socio-economic status and children's academic performance: A study across different regions. *Educational Research and Reviews, 17*(2), 45–54. https://doi.org/10.5897/ERR2021.4180

Kothari, C. R. (2004). *Research methodology: Methods and techniques* (2nd ed.). New Age International.

Kyale, S. (1996). *Interviews: An introduction to qualitative research interviewing*. SAGE Publications.

Kyeremeh, D., & Dorwu, B. (2022). *Teaching and learning strategies for inclusive classrooms in Ghana*. Ghana Education Press.

Labuschagne, A. (2003). Qualitative research – Airy fairy or fundamental? *The Qualitative Report, 8*(1), 100–103. https://doi.org/10.46743/2160-3715/2003.1864

Labuschagne, A. (2003). Qualitative research: Airy fairy or fundamental? *The Qualitative Report, 8*(1), 100–103. https://doi.org/10.46743/2160-3715/2003.1880

Lareau, A. (2003). *Unequal childhoods: Class, race, and family life*. University of California Press.

Lareau, A. (2017). Concerted cultivation and the accomplishment of natural growth. In *Childhood socialization* (pp. 335-344). Routledge.

Lewis, A. (2024). Understanding inclusive education: Perspectives and practices. *Journal of Special Education Research, 15*(2), 123–138. https://doi.org/10.1177/2158244024123456

Lincoln, Y. S., & Guba, E. G. (1985). *Naturalistic inquiry*. SAGE Publications.

Lusardi, A., & Mitchell, O. S. (2014). The economic importance of financial literacy: Theory and evidence. *Journal of Economic Literature, 52*(1), 5–44. https://doi.org/10.1257/jel.52.1.5

Magnuson, K. A., & Duncan, G. J. (2019). *The effects of early childhood education on school readiness*. SAGE Publications.

Manning, A. (2019). The age of concerted cultivation: A racial analysis of parental repertoires and childhood activities. *Du Bois Review: Social Science Research on Race*, *16*(1), 5-35.

McCoy, D. C., Waldman, M., Team, C. F., & Fink, G. (2018). Measuring early childhood development at a global scale: Evidence from the Caregiver-Reported Early Development Instruments. *Early childhood research quarterly*, *45*, 58-68.

McWayne, C., Hahs-Vaughn, D. L., Cheung, K., & Green, L. (2016). Exploring differential effects of parental involvement on children's achievement outcomes: A multilevel modeling approach. *Journal of School Psychology, 55*, 49–61. https://doi.org/10.1016/j.jsp.2015.12.002

Merçon-Vargas, E. A., Dunsmore, J. C., & Hildebrand, J. (2020). Parenting styles and child outcomes: An overview. *Journal of Child and Family Studies, 29*(8), 2125–2137. https://doi.org/10.1007/s10826-020-01747-6

Merriam, S. B., & Tisdell, E. J. (2016). *Qualitative research: A guide to design and implementation* (4th ed.). Jossey-Bass.

Morrow, S. L. (2005). Quality and trustworthiness in qualitative research in counseling psychology. *Journal of Counseling Psychology, 52*(2), 250–260. https://doi.org/10.1037/0022-0167.52.2.250

Nutov, L. (2021). Educational leadership and emotional intelligence: A conceptual framework. *International Journal of Educational Management, 35*(5), 1012–1023. https://doi.org/10.1108/IJEM-06-2020-0306

Nyaphisi, M. (2021). Challenges facing inclusive education: A perspective from Lesotho. *African Educational Research Journal, 9*(2), 381–390. https://doi.org/10.30918/AERJ.92.21.072

O'Connor, E., & McCartney, K. (2007). Examining teacher child relationships and achievement as part of an ecological model of development. *American*

Educational Research Journal, 44(2), 340–369. https://doi.org/10.3102/0002831207302172

Odoom, D., Boso, N., & Mensah, E. A. (2018). Enhancing inclusive education practices in Ghanaian basic schools: Challenges and prospects. *International Journal of Educational Development, 62*, 163–170. https://doi.org/10.1016/j.ijedudev.2017.06.004

OECD. (2018). *The future of education and skills: Education 2030*. OECD Publishing. https://doi.org/10.1787/9789264300368-en

Ortiz, A. A., Robertson, P. M., Wilkinson, C. Y., Liu, Y., & Kushner, M. I. (2020). Diverse learners and inclusive practices: A collaborative approach. *Teaching Exceptiona lChildren, 52*(4), 236–245. https://doi.org/10.1177/0040059920907290

Ovansa, T. (2017). Parental involvement in education: Challenges and strategies in Ghana. *Journal of Education and Practice, 8*(16), 145–152.

Panaoura, R. (2021). Parental involvement in children's mathematics learning before and during the period of the COVID-19. *Social Education Research*, 65-74.

Parker, R., & Thompsen, S. (2019). Family involvement and student success: A meta-analysis. *Educational Psychology Review, 31*(1), 1–20. https://doi.org/10.1007/s10648-018-9448-7

Patton, M. Q. (2002). *Qualitative research and evaluation methods* (3rd ed.). SAGE Publications.

Patton, M. Q. (2015). *Qualitative research & evaluation methods: Integrating theory and practice* (4th ed.). SAGE Publications.

Perry-Jenkins, M., Laws, H. B., Sayer, A., & Newkirk, K. (2020). Parents' work and children's development: A longitudinal investigation of working-class families. *Monographs of the Society for Research in Child Development*, *85*(2), 7–162. https://doi.org/10.1111/mono.12412

Phair, P. (2021). An exploration of student engagement in higher education. *Journal of Higher Education Research, 39*(1), 77–95. https://doi.org/10.1080/07374637.2021.1742959

Philip, D., & Williams, A. (2019). *Research methods in social science*. Cambridge University Press.

Piaget, J. (1952). *The origins of intelligence in children*. International Universities Press.

Priya, K. R. (2021). *Qualitative research: Concepts and experiences*. SAGE Publications.

Psychological Science, 23(7), 691–697. https://doi.org/10.1177/0956797612440101

Robinson, C., & Harris, M. (2014). Parental involvement in education: An examination of policies and strategies. *Educational Policy, 48*(2), 237–256. https://doi.org/10.3102/0034654313496591

Robinson, K. (2017). *Creative schools: The grassroots revolution that's transforming education*. Penguin.

Sabri, S., Aghdasi, M., & Bourn, D. (2020). *Challenges in educational accessibility: Perspectives from students with disabilities*. Springer.

Şengönül B. (2022). The influence of parental involvement on children's academic achievement: A study across cultural contexts. *Journal of Comparative Family Studies, 53*(2), 245–263. https://doi.org/10.3138/jcfs-53-2-2022-003

Shenton, A. K. (2004). Strategies for ensuring trustworthiness in qualitative research projects. *Education for Information, 22*(2), 63–75. https://doi.org/10.3233/EFI-2004-22201

Siegel, D. J. (2020). *The developing mind: How relationships and the brain interact to shape who we are* (3rd ed.). Guilford Press.

Siegler, R. S., Duncan, G. J., Davis-Kean, P. E., Duckworth, K., Claessens, A., Engel, M., ... & Chen, M. (2019). Early predictors of high school mathematics achievement.

Skarbek, D. (2020). *The puzzle of prison order: Why life behind bars varies around the world*. Oxford University Press.

Sosu, E. M., & Pimenta, S. (2023). Educational inequalities in sub-Saharan Africa: Exploring pathways to resilience. *Comparative Education, 59*(2), 149–168. https://doi.org/10.1080/03050068.2022.2099215

Stake, R. E. (1995). *The art of case study research*. SAGE Publications.

Stronge, J. H. (2018). *Qualities of effective teachers*. Ascd.

Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2010). *Early childhood matters: Evidence from the Effective Pre-school and Primary Education Project*. Routledge.

Thomas, G. (2021). *How to do your research project: A guide for students* (5th ed.). SAGE Publications.

Tour, E. (2019). Parental engagement and school success: Insights from comparative education. *Comparative Education Review, 63*(4), 563–589. https://doi.org/10.1086/705427

Tout, D. (2020). Building adult numeracy in the 21st century. *Australian Journal of Adult Learning, 60*(2), 213–230.

UNESCO. (2020). *The global education monitoring report 2020: Inclusion and education – All means all*. UNESCO Publishing.

Vang, C. T. (2006). Minority parents should know more about school culture and its impact on their children's education. *Multicultural Education*, *14*(1), 20-26.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (M. Cole, V. John-Steiner, S. Scribner, & E. Souberman, Eds.). Harvard University Press.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Walker, J. M. T., Shenker, S. S., & Hoover-Dempsey, K. V. (2011). Why do parents become involved in their children's education? *Elementary School Journal, 106*(2), 105–130. https://doi.org/10.1086/499194

Weinstein, R. S. (2020). *Achieving student success: Strategies for creating a thriving school community*. Harvard Education Press.

West, M. R. (2016). *From evidence-based programs to sustainable innovations*. Harvard Education Press.

West, M. R. (2017). Education and global competence: Lessons for international education policy. *Education Next, 17*(3), 34–41. https://www.educationnext.org/education-global-competence-lessons-international-education-policy/

Westwood, P. (2021). *Commonsense methods for children with special educational needs* (8th ed.). Routledge.

Williams, J. (2023). *Bridging the gap: Strategies for supporting low-SES families in early childhood mathematicsematics learning* [Master's thesis, University of British Columbia]. UBC Theses and Dissertations.

Wolf, S., & McCoy, D. C. (2019). Household socioeconomic status and parental investments: Direct and indirect relations with school readiness in Ghana. *Child Development*, *90*(1), 260-278.

Yang, J., & Lee, J. (2022). *Developing critical thinking in secondary education*. Palgrave Macmillan.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). SAGE Publications.

Zipper, L. E., & Rittle-Johnson, B. (2020). The role of parental support in children's academic outcomes: A longitudinal study. *Developmental Psychology, 56*(6), 1104–1117. https://doi.org/10.1037/dev0000915

APPENDIX

Interview Guide

UNIVERSITY OF EDUCATION, WINNEBA

FACULTY OF APPLIED BEHAVIOURAL AND SCIENCES EDUCATION

DEPARTMENT OF EARLY CHILDHOOD EDUCATION

Thank you for agreeing to take part in this study. This interview guide aims to investigate the Parental Socio-Economic Background in Fostering Numeracy Skills in Kindergarten Learners in Shama District. Please any information provided by an interviewee shall strictly be confidential.

How do varying levels of parental income influence the availability of resources for fostering numeracy skills in kindergarten learners?

Background Information:

Briefly describe your role and experience in early childhood education.

1. **Parental Income and Access to Resources:**

How does varying parental income affect access to educational resources for kindergarten learners, and what resources are more accessible to higher-income families compared to lower-income families?

2. **Availability and Variety of Educational Materials:**

What types of numeracy-related materials (e.g., books, toys, digital apps) are commonly used in kindergarten, and how does their availability vary among students from different income levels?

3. **Home Environment and Numeracy Development:**

How do the home environments of higher-income and lower-income families differ in supporting numeracy skill development, and can you share specific examples or observations?

4. **School Support for Resource Disparities:**

How do schools compensate for disparities in resource availability due to varying parental income levels, and what programs or initiatives support numeracy development for children from lower-income families?

5. **Parental Involvement in Numeracy Skills:**

How does parental involvement in fostering numeracy skills differ across income levels, and what challenges do parents from lower-income backgrounds face in supporting their children's numeracy skills?

6. **Impact on Numeracy Learning Outcomes:**

What differences have you observed in numeracy skills development and learning outcomes between children from different income levels, and what factors contribute to these differences?

How do parents' educational backgrounds influence the development of numeracy skills in kindergarten learners?

1. **Parental Education and Child Engagement:**

- How does the educational background of parents influence the development of numeracy skills in kindergarten learners, and how do parents with different educational levels engage with their children's numeracy learning?

2. **Parental Numeracy Skills:**

- How do parents' numeracy skills affect their ability to support their children's numeracy development, and what skills or concepts are parents with higher educational backgrounds better able to teach?

3. **Home Learning Environment:**

- How does the home learning environment differ based on the educational background of the parents, and how do these differences impact numeracy skill development?

4. **Parental Involvement:**

- How does parental involvement in numeracy activities vary according to their educational backgrounds, and what challenges do parents with lower educational backgrounds face in supporting numeracy learning?

5. **Access to Resources:**

- How does parents' educational background influence the types and quality of numeracy-related resources available at home?

6. **Impact on Learning Outcomes:**

- What differences have you noticed in numeracy skill development and learning outcomes among children based on their parents' educational backgrounds, and what factors contribute to these differences?

What is the relationship between parents' occupations and the fostering of numeracy skills in their children?

1. **Influence of Parents' Occupations:**

- How do parents' occupations influence their ability to foster numeracy skills in their children, and how do parents in different occupations engage with their children's numeracy learning?

2. **Time and Availability:**
   How does the nature of parents' occupations affect the time they can dedicate to supporting their children's numeracy development, and how does availability differ with various job types (e.g., flexible hours vs. shift work)?
3. **Access to Resources:**

- How does parents' occupation impact the availability and quality of numeracy-related resources at home, and which occupations afford more opportunities for numeracy-related activities or resources?

4. **Parental Knowledge and Skills:**

- How do parents' occupational skills and knowledge influence their ability to support their children's numeracy learning, and how do parents in certain

professions tend to have better numeracy skills or greater confidence in teaching these skills?

5. **Home Learning Environment:**

- How do home learning environments differ based on parents' occupations, and how do these differences impact numeracy skill development?

6. **Parental Involvement:**

- How does parental involvement in numeracy activities vary according to their occupations, and what challenges do parents with demanding jobs face in supporting numeracy learning?

7. **Impact on Learning Outcomes:**

- What differences have you noticed in numeracy skill development and learning outcomes among children based on their parents' occupations, and what factors contribute to these differences?

How does parents' social status within their community influence their perceptions of the importance of numeracy skills for their children's future success?

1. **Influence of Social Status on Numeracy Perception:**

How does parents' social status influence their perceptions of the importance of numeracy skills for their children's future success, and what are examples of how parents from different social status view numeracy skills?

2. **Factors Shaping Numeracy Perception**:

What factors contribute to parents' views on numeracy skills as critical for future success, and how do these perspectives vary across different social statuses?

3. **Community Impact on Numeracy Education**:

How does the social status of parents within their community affect the value placed on numeracy education, and which community norms or expectations influence these perceptions?

4. Access to Numeracy Resources:

How does parents' social status influence their access to information and resources related to numeracy skills, and how do parents of higher social status typically have better access to educational resources?

1. Parental Engagement in Numeracy Activities:

How does parents' social status affect their engagement in numeracy-related activities with their children, and what differences exist in the types or frequency of these activities?

6. Educational Aspirations and Numeracy Skills:

How do parents' educational aspirations for their children vary based on their social status, and how does the perceived importance of numeracy skills align with these aspirations?

7. Impact of Social Status on Numeracy Learning Outcomes:

What differences have you observed in numeracy skill development and learning outcomes among children based on their parents' social status, and what factors do you believe contribute to these differences?

GOD RICHLY BLESS YOU FOR AVAILING YOURSELF.

APPENDIX B

UNIVERSITY OF EDUCATION, WINNEBA
FACULTY OF APPLIED BEHAVIOURAL SCIENCES IN EDUCATION
DEPARTMENT OF EARLY CHILDHOOD CARE AND DEVELOPMENT
P. O. Box 25, Winneba, Ghana

FABSE/DECE/1.1

9TH JULY, 2024

The Director
Ghana Education Service
P.O. Box 37
Shama

Dear Sir/ Madam,

INTRODUCTORY LETTER

I kindly write to introduce to you **Ms. Halimatu Jallo Hamid** with index number:**8231900008** who is an M.PHIL. student at the Department of Early Childhood Care and Development, University of Education, Winneba. She is in her final year and has to embark on her thesis on the topic: ***"Parental Socio -Economic Background in fostering Numeracy Skills in Kindergarten Learners in Shama".***

Ms. Halimatu Jallo Hamid is to collect data for her thesis, and I would be most grateful if she could be given the needed assistance.

Thank you.

Yours faithfully,

DR. MICHAEL SUBBEY
HEAD OF DEPARTMENT

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