

UNIVERSITY OF EDUCATION, WINNEBA

**Kindergarten teachers' use of teaching and learning resources in Lessons
delivery in the Sagnarigu Municipality**




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**KINDERGARTEN TEACHERS' USE OF TEACHING AND LEARNING
RESOURCES IN LESSONS DELIVERY IN THE SAGNARIGU
MUNICIPALITY**

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The logo of the University of Education, Winneba, is a circular emblem. It features a central sunburst design with a flame-like shape at the top. Below the sunburst are four stylized human figures arranged in a circle, each with arms raised. The entire emblem is set against a red and white background. A banner at the bottom of the circle contains the motto "EDUCATION FOR ALL".

**A thesis in the Department of Early Childhood Education,
Faculty of Educational Studies, submitted to the School
of Graduate Studies in Partial fulfilment of the requirement
for the award of degree of
Master of Philosophy
(Early Childhood Education)
in the University of Education, Winneba**

SEPTEMBER, 2025

DECLARATION

Candidate's Declaration

I **Sulley Rebecca**, declare that this thesis, with the exception of quotations and references contained in published works which have all been identified and duly acknowledged, is entirely my own original work, and it has not been submitted, either in part or whole, for another degree elsewhere.

Signature.....

Date.....

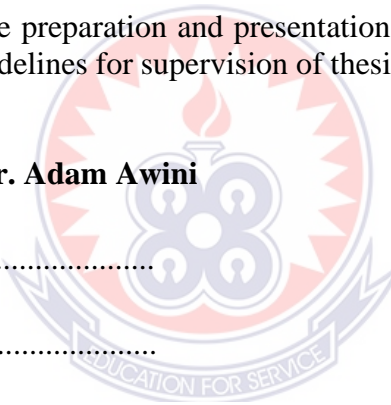
Supervisor's Declaration

I hereby declare that the preparation and presentation of this work was supervised in accordance with the guidelines for supervision of thesis as laid down by the University of Education, Winneba.

Supervisor's Name: Dr. Adam Awini

Signature.....

Date.....



DEDICATION

To my family.



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LIST OF ABBREVIATIONS

ECCD	Early Childhood Care and Development
ECE	Early Childhood Education
GES	Ghana Education Service
GNAT	Ghana National Association of Teachers
HTR	Head teacher
JHS	Junior High School
KG	Kindergarten
MOE	Ministry of Education
PLC	Professional Learning Community
QECE	Quality Early Childhood Education
SBI	School Based In-service
SHS	Senior High School
SISO	School Improvement Support Officer
SPSS	Statistical Product and Social Services
STEM	Science, Technology, Engineering, and Mathematics
TLRs	Teaching and Learning Resources
T-TEL	Transforming Teacher Education and Learning
UNESCO	United Nations Educational, Scientific & Cultural Organization
ZPD	Zone of Proximal Development

ABSTRACT

The study was undertaken in the Sagnarigu Municipality with the purpose of investigating how kindergarten teachers use teaching and learning resources in their lesson delivery. The study utilized mixed methods approach involving questionnaire, interview and observation to provide evidence for studying the research problem rather than either quantitative or qualitative study alone. The study population comprised all five hundred and ten (510) kindergarten teachers and one hundred and thirty head teachers who head both Kindergarten and Primary schools under the Sagnarigu Municipal Education Directorate. The sample size for this study comprised twenty (20) kindergarten teachers and ten (10) head teachers. The qualitative data was analyzed using thematic approach while the quantitative data was analyzed using the Statistical Product and Social Services (SPSS) software version 26.0. The study found that Kindergarten teachers use a variety of TLRs, including textbooks for teachers and learners, exercise books, drawing books, materials for tracing, reading books, storybooks, big books, conversational posters, flip charts, flashcards, empty cans and boxes for teaching shapes, bottle tops, sticks, counters, and straws for numeracy, cardboards for other activities, pictures of scenes on the walls, drawings of learners on the walls, learning centres, sand trays, and manipulatives. Also, it was revealed that Kindergarten teachers utilize TLRs in various interactive and engaging ways to enhance learning. For instance, flashcards and word cards are used for vocabulary building and sentence construction activities. Drawing books and materials for tracing are incorporated into art and fine motor skill development exercises. Exercise books are used for daily practice and assessments. Teachers also use manipulatives like bottle tops, sticks, and counters to teach numeracy concepts, making abstract ideas more concrete for young learners. Additionally, pictures of scenes and drawings on the walls are employed to create a stimulating and visually rich learning environment that supports thematic and experiential learning. The study recommends that teachers should continue to use a diverse array of TLRs, including physical materials like flashcards and drawing books, as well as digital resources to improve learners' engagement and understanding. Also, head teachers should encourage teachers to use TLRs in ways that actively engage learners in the learning process. This can include interactive activities, group work, and hands-on exercises that make learning more dynamic and participatory.

CHAPTER ONE

INTRODUCTION

1.0 Background to the study

Early childhood educators rely heavily on teaching and learning resources (TLRs) to create lessons that are both engaging and suitable for the developmental needs of young children. These resources are diverse in nature and may include visual tools such as charts and flashcards, hands-on manipulatives like blocks or puzzles, storybooks, digital applications, and even interactive games. Essentially, TLRs comprise every instructional material or tool that supports teachers in guiding children through the learning process. They range from very simple and low-tech items, such as bottle tops for counting activities, to highly advanced technological tools like interactive whiteboards or educational apps. When these resources are carefully selected and purposefully applied, they help children participate actively, retain knowledge more effectively, and make learning enjoyable. Research consistently emphasizes that the right combination of motivated teachers and thoughtfully chosen learning resources is essential for driving meaningful educational progress (Twinkl, 2023). This underscores that resources are not substitutes for teachers but powerful aids that, when integrated into lesson delivery, significantly enrich the learning experience.

The rationale for using teaching and learning resources in early childhood education stems from the recognition that children acquire knowledge best when they are allowed to play, explore, and interact with materials using multiple senses. Unlike older learners who may grasp abstract ideas more easily, young learners benefit most from tactile, visual, and auditory engagement (Smith, 2020). Incorporating a wide range of resources enables teachers to differentiate instruction—offering various pathways to

understanding concepts according to children's learning styles, abilities, and developmental stages (Jones et al., 2021). For example, while one child may understand number concepts through counting objects, another may grasp the same idea through songs or digital games. Beyond academic skills, the thoughtful use of teaching resources enhances children's social and emotional development by encouraging collaboration, sharing, and communication with peers (Brown & White, 2020). Importantly, the choices teachers make about which resources to use directly influence student motivation, classroom participation, and overall achievement (Johnson, 2021). This makes resource selection not just a matter of convenience but a professional decision that shapes the quality of early childhood education.

Globally, kindergarten teachers are expected to possess specialized knowledge and skills that enable them to effectively use teaching and learning resources. Core competencies required of early childhood teachers include a solid understanding of child development, proficiency in utilizing both traditional and digital teaching materials, the ability to adapt instruction to diverse cultural contexts, and the capacity to assess children's progress while providing constructive feedback (Maxwell & Patel, 2022). In Ghana, these competencies are increasingly emphasized through teacher training programs offered by public universities and colleges of education. Certificate, diploma, and degree programs in early childhood education have been introduced to build professional capacity in this field. However, despite these initiatives, many kindergarten classrooms across the country are still staffed by untrained personnel, which limits the effective delivery of high-quality education. The quality of learning outcomes remains closely tied to the activities planned by teachers and the availability of relevant resources (Johnson, 2021). This demonstrates the urgent need for continuous

investment in teacher preparation and the recruitment of qualified professionals for early childhood classrooms.

In Ghana, the Ministry of Education has established several policies and frameworks to improve the use of teaching and learning resources in kindergarten education. One of the key interventions is the revised National Kindergarten Curriculum Framework, which emphasizes active learning and developmentally appropriate practices supported by carefully selected resources (Ghana Education Service, 2021). The curriculum encourages teachers to integrate a balance of play-based and structured learning activities using both modern and locally available materials. Furthermore, Ghana's Early Childhood Care and Development (ECCD) Policy highlights the importance of age-appropriate teaching materials that promote holistic development, including physical, emotional, social, and intellectual growth (Government of Ghana, 2020). To complement these policies, the Ministry organizes professional development programs and workshops to train teachers in innovative and culturally responsive use of instructional resources. Teachers are urged to use locally sourced materials such as clay, beads, sticks, or fabric, alongside digital tools, to make lessons more relevant and relatable (Ghana National Association of Teachers, 2022). Additionally, the Ghana Education Service carries out periodic monitoring and evaluation of kindergartens to ensure effective resource use and to provide guidance on areas needing improvement (Ministry of Education, Ghana, 2022). These policies collectively aim to strengthen early childhood education by ensuring both the availability and proper application of learning resources.

The environment in which children learn significantly influences the quality of their educational experiences. A stimulating and resource-rich classroom provides children with numerous opportunities to explore, manipulate, and interact with instructional

materials, which strengthens their understanding of new concepts. A well-structured environment goes beyond physical space—it encompasses the arrangement of resources, the accessibility of materials, and the overall atmosphere of the classroom. According to Omaiyo (2013), the most effective early childhood classrooms are characterized by well-organized resources, supportive teacher-child interactions, and environments that encourage curiosity and exploration. Similarly, Okoruwa and Oladebinu (2017) argue that the presence of meaningful resources and their effective use are central to promoting quality teaching practices in preschools. The more stimulating the environment, the more opportunities children have to learn actively and meaningfully. Therefore, creating rich learning spaces filled with diverse teaching and learning resources is fundamental to providing high-quality early childhood education. While teaching and learning resources are critical for effective instruction, their successful use depends on a range of interrelated factors. These include the physical classroom environment, teachers' training and ongoing professional development, curriculum expectations, and teachers' individual beliefs about how children learn (Maxwell & Patel, 2022). Administrative support also plays a key role, as schools that prioritize resource provision and teacher collaboration create more enabling environments for effective teaching. Additionally, student engagement and needs often influence teachers' resource choices. For example, a teacher working with children who struggle with language skills may rely more on visual and tactile resources, whereas another may use more digital tools in a tech-friendly environment. Thus, the utilization of TLRs is shaped by both external conditions, such as institutional support, and internal factors, such as teachers' professional philosophies.

The use of TLRs in early childhood classrooms must go beyond mere availability; children should have opportunities to directly engage with and manipulate the materials. A study by Opong Frimpong (2021) in Ghana's Agona East District revealed mixed views about teachers' attitudes toward resource use. While many educators acknowledged the importance of TLRs, challenges persisted in ensuring that children had consistent access to these materials. Frimpong highlighted that teachers who allow children to actively handle and explore resources promote deeper understanding of concepts compared to those who limit access to themselves. For instance, if counting sticks are available but only the teacher uses them during demonstrations, children's learning becomes passive rather than interactive. Effective use of resources requires creating opportunities for children to touch, explore, and experiment with them during lessons. Research also shows that children's direct interaction with resources helps develop critical thinking, problem-solving, and fine motor skills. In this regard, the presence of resources in classrooms must be paired with strategies that make them accessible and engaging. The current study therefore seeks to investigate how kindergarten teachers in Sagnarigu Municipality employ teaching and learning resources in lesson delivery, with particular attention to their accessibility, suitability, and impact on children's learning outcomes.

1.1 Problem Statement

Despite the persistent national and international campaigns advocating the effective use of teaching and learning resources (TLRs) in early childhood classrooms, the actual practice among kindergarten teachers in Sagnarigu Municipality remains inadequate. Teachers often introduce these resources during lessons, but their application is minimal, limiting the extent to which children benefit from them. Instead

of being fully integrated into lesson delivery, TLRs are either underutilized or handled solely by teachers, leaving learners with little or no opportunity to interact with them. For instance, during storytelling sessions, children are rarely guided through “picture walks,” which are essential for stimulating imagination, building vocabulary, and promoting early literacy skills. Similarly, instead of ensuring that every child gains hands-on exposure to learning tools such as blocks, charts, or counters, teachers tend to demonstrate activities themselves. This situation raises pressing concerns about the quality of early childhood education in the municipality, as children are deprived of the exploratory learning opportunities that TLRs are intended to provide. The lack of learner interaction with materials diminishes the potential benefits of these resources, leading to gaps in comprehension, engagement, and skill development among young learners.

Teaching and learning resources have always played a vital role in education, dating back to traditional societies where stones, sticks, and drawings were used to explain concepts in practical ways. In modern classrooms, the role of TLRs is to make learning concrete, meaningful, and enjoyable by connecting abstract ideas to real-life experiences. Teachers use them to illustrate concepts, clarify skills, and enrich the learning process. However, for these resources to achieve their purpose, they must be accessible to learners and not just used as teacher-centered demonstration tools. Opong Frimpong (2017) argues that the effectiveness of TLRs is determined by the extent to which teachers create opportunities for children to manipulate, explore, and internalize them. If resources are present in a classroom but remain out of learners’ reach—handled exclusively by teachers—they cease to function as tools of active learning. Instead, they become passive aids that fail to contribute to meaningful knowledge construction. This

highlights the critical need for teachers in Sagnarigu to rethink their strategies and foster environments where children actively engage with TLRs during lessons.

Scholars further emphasize that children's direct interaction with teaching and learning resources is central to achieving effective learning outcomes. According to Maxwell and Patel (2022), the use of TLRs is influenced by multiple factors, including their availability, the physical layout of classrooms, teachers' training and professional competence, curriculum expectations, teaching philosophies, the extent of administrative support, and collaboration with peers. This means that the effective integration of TLRs cannot be viewed in isolation; rather, it requires a holistic system where materials are available, teachers are adequately trained, and classrooms are structured to allow their use. For instance, a teacher who strongly believes in child-centered approaches will prioritize giving learners hands-on experiences with TLRs, while another with limited training or confidence may restrict their use. Therefore, the suboptimal use of resources observed in Sagnarigu classrooms reflects broader challenges involving training gaps, resource shortages, and teacher beliefs about pedagogy.

Previous studies have also shown that kindergarten teachers in Ghana encounter numerous barriers in their efforts to incorporate teaching and learning resources effectively. Owusu (2020) highlights that many early childhood classrooms face resource shortages, limiting teachers' ability to make lessons interactive and engaging. In addition, Aidoo and Boateng (2022) argue that some teachers lack sufficient training on how to use available resources effectively, resulting in missed opportunities for improving learners' outcomes. Another challenge lies in the cultural relevance of materials. As Asante (2021) notes, when TLRs are not adapted to the cultural realities of Ghanaian children, they fail to resonate with learners' everyday experiences, thereby

weakening comprehension and reducing motivation. Taken together, these issues suggest that even when resources exist, their usefulness is undermined by shortages, inadequate teacher preparation, and contextual mismatches. The consequence is that children are denied dynamic and stimulating learning environments that could foster cognitive growth, creativity, and social development.

The implications of these challenges are significant. The inability of teachers to integrate TLRs effectively means that children may struggle to acquire foundational skills in literacy, numeracy, and problem-solving, which are essential for later academic success. Missed opportunities for active learning hinder curiosity and critical thinking, both of which are crucial in early childhood education. During field observations in Sagnarigu Municipality, it was noted that some teachers lacked the requisite skills to meaningfully incorporate resources into their lesson delivery. Although the Municipal Education Directorate has organized professional development workshops, reports from the Municipal Training Officer indicate that these training sessions have not adequately addressed the specific challenges surrounding the use of teaching and learning resources. This gap in professional support exacerbates the problem, leaving teachers ill-equipped to maximize the potential of available resources. Consequently, the persistent suboptimal use of TLRs threatens the overall quality of early childhood education in the municipality and undermines efforts to provide learners with the strong educational foundation they need for future success.

1.2 Purpose of the study

The purpose of this research was to investigate how kindergarten teachers use teaching and learning resources in their lessons in the public kindergartens of the Sagnarigu Municipality.

1.3 Objectives of the study

The objectives of the study were to:

1. examine the competencies of kindergarten teachers on the use of teaching and learning resources in lessons delivery at Sagnarigu Municipality.
2. assess the type of teaching and learning resources used by kindergarten teachers in lesson delivery at Sagnarigu Municipality.
3. investigate how kindergarten teachers use teaching and learning resources in lessons delivery in the Sagnarigu Municipality.
4. investigate the challenges faced by kindergarten teachers in accessing and utilizing teaching and learning resources in the Sagnarigu Municipality.

1.4 Research Questions

The study was guided by the following research questions:

1. What competencies do kindergarten teachers have in the use of teaching and learning resources in lesson delivery?
2. What type of teaching and learning resources are used by kindergarten teachers in lesson delivery in the Sagnarigu Municipality?
3. How do kindergarten teachers in the Sagnarigu Municipality use teaching and learning resources in lesson delivery?
4. What type of challenges do kindergarten teachers in the Sagnarigu Municipality encounter when it comes to utilizing teaching and learning resources in lesson delivery?

1.5 Significance of the Research

The significance of this study lies in its potential to directly benefit multiple stakeholders within the education sector, particularly teachers, administrators, and policymakers. For teachers, the findings and recommendations are expected to equip them with practical knowledge and skills that will enable them to effectively integrate teaching and learning resources (TLRs) into lesson delivery. This will not only empower teachers to become more relevant and adaptable in the classroom but will also enhance their professional confidence and competence. By highlighting strategies for meaningful resource use, the study will encourage educators to move beyond traditional teacher-centered practices and embrace child-centered approaches that foster hands-on learning and active participation.

At the policy level, the study may inform changes in the guidelines of the Ghana Education Service (GES), particularly concerning the provision, utilization, and monitoring of TLRs in kindergarten education. Evidence generated from the research can guide the Sagnarigu Municipal Directorate of Education in prioritizing the allocation of resources toward early childhood centers, ensuring that schools are adequately equipped with materials that support active learning. Furthermore, the study will provide valuable insights for policymakers, school administrators, and development partners by drawing attention to the critical role that teaching resources play in shaping learning outcomes. Understanding the barriers teachers face in accessing and using these resources can also lead to more targeted interventions, including professional training programs, infrastructural support, and community involvement in resource mobilization.

Finally, the study adds to the broader academic and professional discourse on early childhood education in Ghana. It contributes to the existing body of knowledge

by examining how TLRs are applied within the unique context of Sagnarigu Municipality, thereby filling a gap in research on resource utilization in Northern Ghana. By doing so, the findings can serve as a reference point for future studies and stimulate further investigations into best practices for improving the quality of early childhood education nationwide.

1.6 Delimitation

The scope of this study is intentionally limited to selected public kindergarten schools within the Sagnarigu Municipality. Public schools were chosen because they are more accessible to the researcher and because they represent the majority of early childhood education centers serving the local population. The study does not include private or community-based kindergartens, which may operate under different conditions and with different levels of resource availability.

The research specifically focuses on how teachers in these public kindergartens use teaching and learning resources in their lesson delivery. Given that TLRs constitute a broad field of study, the investigation is narrowed down to three key aspects: (i) the ways in which teachers use resources in their daily teaching practices, (ii) the types of resources employed, and (iii) the challenges teachers face in utilizing them effectively. By concentrating on these dimensions, the study aims to provide a clear and manageable analysis while staying relevant to the immediate educational context of the municipality.

Furthermore, the target population for this study consists solely of teachers working in public kindergarten centers. Consequently, the findings are not intended to be generalized to all kindergarten teachers across the Northern Region of Ghana.

Instead, they reflect the realities and practices of teachers within the Sagnarigu Municipality and should be interpreted within that context.

1.7. Limitations of the Study

As with any research, this study is subject to certain limitations that may affect the scope and generalizability of its findings. One notable limitation was the reluctance of some teachers to fully participate or provide detailed information during data collection. In some cases, respondents expressed fears that their responses might have implications for their professional evaluations or expose shortcomings in their teaching practices. This hesitancy may have limited the depth of some responses, thereby affecting the richness of the data.

Additionally, the study focused exclusively on public kindergarten teachers in a single municipality. As such, the findings may not fully capture the diversity of experiences and practices among teachers in other districts or in private educational institutions. Despite these constraints, the researcher employed measures such as ensuring confidentiality and emphasizing the academic purpose of the study to encourage honest responses, thereby minimizing the impact of these limitations on the overall quality of the findings.

1.8 Operational Definition of Terms

Early Childhood Education (ECE): This refers to structured and semi-structured educational services designed for children below the age of six, which combine elements of care, play, and learning. These services may include preschools, nurseries, day care centers, home visits by trained professionals, as well as programs that integrate health, nutrition, and parental education to support holistic child development.

Kindergarten: A transitional educational program, typically for children aged four to six years, that serves as an introduction to formal schooling. Kindergarten focuses on foundational learning, including literacy, numeracy, social skills, and structured play, thereby preparing children for primary education.

Teaching and Learning Resources (TLRs): These are all materials, tools, and technologies—whether physical, digital, or human-made—that teachers employ to facilitate instruction, support comprehension, and engage learners in the learning process. They include items such as books, charts, digital applications, manipulatives, audio-visual aids, and culturally relevant locally sourced materials.

1.9 Organization of the Study

The study is structured into five interrelated chapters, each serving a distinct purpose in presenting the research.

- **Chapter One** introduces the study by providing background information, articulating the research problem, stating the objectives, and outlining the research questions. It also discusses the significance, delimitations, limitations, operational definitions, and the organization of the entire work.
- **Chapter Two** reviews relevant literature, drawing on theoretical frameworks, empirical studies, and conceptual discussions that inform the study. The chapter situates the research within existing scholarship while identifying gaps that justify the current investigation.
- **Chapter Three** describes the research methodology adopted. It explains the research design, population, sample size, and sampling procedures. It further outlines the instruments used for data collection, the process followed in

collecting the data, the methods of analysis, and the ethical considerations that ensured credibility and validity of the study.

- **Chapter Four** presents the results of the study and discusses them in relation to the research objectives and previous literature. The chapter highlights patterns, themes, and significant findings that emerged from the data.
- **Chapter Five** concludes the study by summarizing the major findings, drawing relevant conclusions, and making recommendations aimed at teachers, policymakers, and other stakeholders. It also suggests areas for further research to extend knowledge in the field of early childhood education.



CHAPTER TWO

LITERATURE REVIEW

2.0. Overview

This chapter of the study focuses on a review of related literature with the following subheadings

1. Theoretical framework
2. The concept of teaching and learning resources
3. Types of teaching and learning resources
4. Importance of Teaching and learning resources in Early Childhood Education
5. Current Practices of Teaching Material Usage in Early Childhood Education in Ghana
6. Challenges Faced by Early Childhood Teachers in Integrating Teaching Resources
7. Strategies Employed for Effective Integration of Teaching Resources
8. Competencies Teachers have in Using Teaching and Learning Resources
9. Conceptual framework

2.1 Theoretical Framework

The guiding theoretical foundation for this study is Lev Vygotsky's theory of social constructivism (1896–1934). Vygotsky emphasized that learning does not occur in isolation but rather in a social and cultural context, where interactions with peers, teachers, parents, and the environment significantly shape the child's cognitive development. His theory stresses that human development is deeply influenced by the social interactions and cultural tools available to the learner.

One of the central concepts in Vygotsky's framework is the Zone of Proximal Development (ZPD), which refers to the range between what a child can achieve

independently and what they can achieve with guidance from a more knowledgeable individual. Within the ZPD, children are provided with scaffolding—structured support from teachers or peers—which enables them to progress beyond their current capabilities. As children internalize this support, they gradually acquire independence in problem-solving and concept mastery. In other words, knowledge and skills first emerge at a social level before being internalized at the individual level.

From this perspective, learning is regarded as an active, interactive, and dynamic process. Children engage in dialogue, cooperative problem-solving, and role-play, all of which facilitate the construction of meaning. For instance, when children in early childhood settings are given physical teaching aids such as picture cards, counting sticks, or storybooks, they do not simply absorb information passively. Instead, through interaction with these materials and discussions with teachers or peers, they construct their own understanding of concepts such as numbers, letters, and social roles. This aligns with Vygotsky's argument that knowledge is co-constructed through collaboration rather than transmitted in a one-directional manner.

Vygotsky also emphasized the significance of cultural tools—such as language, symbols, writing, and mathematical systems—in advancing cognitive growth. These tools provide learners with structured ways of interpreting the world. For example, language not only helps children communicate but also plays a central role in shaping thought processes. By using words and symbols, children are able to move from concrete to abstract thinking, an essential progression in early childhood education.

Teachers, therefore, have a critical role in guiding children within their ZPD by using appropriate teaching and learning resources. When teachers provide manipulatives such as blocks, puzzles, or visual aids, they give children the opportunity to explore, experiment, and create meaning. In this way, TLRs function as scaffolds

that enhance cognitive, social, and emotional growth. According to this framework, effective teaching requires teachers to be active facilitators who design learning environments that promote exploration, dialogue, and collaboration.

Social constructivism also highlights the importance of play and imaginative activities in early childhood learning. Vygotsky argued that play allows children to step into new roles, negotiate rules, and create symbolic representations, all of which expand their cognitive and social capacities. For instance, during pretend play, a child might use a stick to represent a spoon, thereby demonstrating symbolic thinking. Such activities are strengthened when teachers provide diverse TLRs that enrich children's imaginative experiences.

Furthermore, Vygotsky's socio-cultural perspective stresses the interconnectedness of social interaction, culture, and learning materials. He believed that children's engagement with cultural tools and guided participation leads to the development of higher-order thinking skills, such as reasoning, problem-solving, and self-regulation. Teachers who apply this theory are encouraged to create practical, hands-on learning experiences by integrating TLRs into everyday classroom practice.

Vygotskian theory

Lev Vygotsky's perspective on child development provides a distinctive contrast to the ideas advanced by Jean Piaget. While Piaget emphasized the child's independent exploration of the environment as the primary driver of cognitive growth, Vygotsky highlighted the central role of social and cultural context in shaping mental development. According to Vygotsky, a child's intellectual abilities are not solely the product of natural maturation but are deeply influenced by interactions with teachers, peers, parents, and the broader cultural environment (Bodrova & Leong, 2014). This

view implies that cognition is not an isolated activity but one that is constructed within a web of social relationships.

In practical terms, Vygotsky believed that classroom interactions play a decisive role in fostering learning and development. He argued that the way teachers engage with children—through questioning, guiding, and modeling—largely determines how effectively students acquire knowledge and skills (Smidt, 2009). When teachers introduce collaborative activities such as group problem-solving, jigsaw puzzles, or hands-on projects like molding and reconstructing objects, they create opportunities for children to go beyond their current level of functioning. These structured interactions serve as scaffolds that extend learners' capabilities.

A central element of Vygotsky's theory is the Zone of Proximal Development (ZPD), which refers to the distance between what a learner can achieve independently and what they can achieve with support. When teaching and learning resources (TLRs) are effectively used, they provide the scaffolding necessary to move learners into their ZPD. For instance, the use of pictorial charts, letter blocks, or number rods allows children to engage in tasks that are slightly more advanced than what they could handle unaided. In this way, learning resources act as mediating tools that stretch children "a head taller than themselves" (Vygotsky, 1978).

Vygotsky also argued that learning through symbolic play and imagination enables children to develop higher-order thinking skills. When learners pretend that a stick is a spoon or a box is a car, they begin to separate meaning from object, which is an essential step toward abstract thought. This process lays the foundation for literacy and numeracy, as children learn that written symbols—such as the letters "a" or "A"—represent specific sounds and concepts beyond their visual form. Thus, teaching

materials that stimulate imagination and symbolic play are not merely tools for entertainment but essential instruments for building abstract reasoning.

In summary, Vygotsky's theory demonstrates that teaching and learning resources are not supplementary materials but are integral to children's cognitive growth. By engaging with appropriate resources under the guidance of teachers, children advance from concrete understanding to abstract thinking. This underscores the importance of designing classroom experiences where teachers act as facilitators and where TLRs are systematically integrated to enhance developmental outcomes.

2.2 The Concept of Teaching and learning resources

Teaching and learning resources (TLRs) refer to the diverse collection of materials, tools, and media that educators employ to support instruction and improve learner outcomes. These resources are not confined to physical objects alone but include textbooks, workbooks, visual aids, audio-visual technologies, digital platforms, educational games, manipulatives, and even the physical environment in which learning takes place. Essentially, TLRs constitute any material or resource that helps the teacher communicate ideas more effectively and assists learners in grasping, applying, and retaining knowledge.

The effectiveness of TLRs lies in their ability to make abstract concepts more concrete and relatable for learners. For example, mathematical ideas such as addition or subtraction may remain vague when explained verbally but become clearer when demonstrated with counters, bottle tops, or blocks. Similarly, literacy skills are enhanced when learners are exposed to illustrated storybooks, flashcards, or interactive digital applications. By engaging multiple senses, these resources promote active learning, increased attention, and deeper comprehension.

Different scholars have defined TLRs in various ways. The Open University (2020) describes them as any resources teachers may use during instruction to meet specific learning objectives and facilitate the teaching-learning process. This broad definition covers lectures, readings, textbooks, multimedia content, and supplementary materials that support pedagogy. For teaching to be most effective, these resources should be carefully aligned with the curriculum, assessment methods, and instructional goals, while also being adapted to the learners' level of understanding and the teacher's approach.

Opong Frimpong (2017) narrows the definition by identifying TLRs as teaching aids such as textbooks, crayons, charts, or cardboard pieces that enable and enrich instruction. The Transforming Teaching, Education and Learning (T-TEL, 2016) initiative in Ghana goes even further by including everyday objects—such as stones, bottle tops, and sticks—as well as the natural or built environment as legitimate TLRs. This perspective emphasizes that effective resources need not always be costly or technologically advanced; rather, creativity in adapting locally available materials can make instruction more practical and engaging.

Lal (2011) underscores the instrumental role of TLRs by noting that they are tools designed to help learners understand concepts more efficiently and with less difficulty. From this view, the ultimate value of TLRs lies not in their sophistication but in how well they facilitate learning. Whether it is chalk and a blackboard or interactive digital software, what matters is their ability to bridge the gap between teaching objectives and learner comprehension.

In essence, TLRs are indispensable in modern education because they transform classrooms into dynamic learning spaces where abstract ideas become tangible, learners remain actively engaged, and knowledge acquisition becomes more meaningful. For

early childhood education, where children are naturally curious and learn best through sensory exploration, TLRs provide the foundational support that nurtures both cognitive development and creativity.

2.3 Types of Teaching and Learning Resources

Scholars such as Smith and Jones (2021) argue that teaching and learning can only be effective when educators make use of diverse instructional materials that address the varied learning styles and preferences of pupils. Learners do not absorb knowledge in a uniform manner; while some are inclined towards visual experiences, others grasp content more effectively through listening or through active participation that combines both senses. Therefore, incorporating a wide range of resources ensures that teaching is inclusive and responsive to individual learning needs. In practice, diversity in instructional resources helps teachers create supportive learning environments where all learners are actively engaged and can achieve meaningful progress.

Teaching and learning resources (TLRs) are often categorized into three main types: audio resources, visual resources, and audio-visual resources. Each category appeals to different sensory modalities and thus contributes uniquely to the learning process.

- Audio resources are materials that rely primarily on the sense of hearing. These include tools such as podcasts, radio broadcasts, recorded lessons, telephone conversations, oral storytelling, and other spoken-word formats.
- Visual resources are designed to stimulate learning through sight. Examples include diagrams, photographs, real objects, drawings, posters, charts, flipcharts, chalkboards, whiteboards, and digital presentations.

- Audio-visual resources integrate both sight and sound, offering a more holistic sensory experience. Examples include television programs, films, online videos, interactive digital content, and multimedia simulations.

By blending these categories within the teaching process, educators can ensure that instruction is not only informative but also engaging, inclusive, and adaptable to the diverse needs of learners.

2.3.1 Audio Teaching and Learning Resources

Audio-based resources have become increasingly significant in modern education, especially in the context of digital and distance learning. They provide learners with an alternative pathway to knowledge acquisition that does not depend on visual cues alone. According to Smith and Jones (2020), audio materials are powerful because they encourage learners to concentrate on auditory information, which can deepen comprehension and stimulate imagination. Podcasts, audiobooks, voice-recorded lessons, and online lectures are examples of audio resources that enable learners to engage meaningfully with content beyond the confines of traditional textbooks.

Empirical studies support the effectiveness of audio resources in improving educational outcomes. Johnson and Brown (2022) discovered that the integration of audio-based tools in lessons enhanced student interest, sustained motivation, and strengthened memory retention. Learners benefit from the possibility of replaying audio materials, which allows them to review and reinforce complex concepts at their own pace. This flexibility makes learning more personalized and student-centered.

Another notable advantage of audio resources lies in their ability to support inclusive education. In the era of remote and technology-driven learning, audio resources provide accessible options for students with special educational needs. Garcia

and Patel (2023) highlight that audio-based tools are especially beneficial for learners with visual impairments, those struggling with reading difficulties such as dyslexia, or individuals facing language barriers. By providing an auditory pathway to knowledge, these resources help dismantle learning barriers and foster equal opportunities for all.

Emerging innovations in education are also reshaping the potential of audio learning. Current research is exploring advanced technologies such as immersive sound environments, binaural audio, and spatial sound systems. These tools create interactive and realistic learning experiences, making lessons more engaging. However, challenges remain, including ensuring the quality of audio production, providing equitable access to such resources, and addressing disparities in technological infrastructure across schools.

Overall, audio teaching and learning resources serve as critical enablers of modern pedagogy. They enhance comprehension, encourage student engagement, and promote inclusivity in education. When used effectively, these resources transform classrooms into spaces where learners are active participants, not passive recipients of information. Continued investment in audio technologies promises to revolutionize education by fostering creativity, adaptability, and lifelong learning habits.

2.3.1.1 Auditory Learning

Auditory learning represents a distinct learning style in which individuals process and retain information most effectively through listening. Unlike visual learners, who rely on sight, or kinesthetic learners, who learn through touch and movement, auditory learners thrive when content is delivered verbally. As noted by BAU (2024), these learners prefer spoken explanations, oral discussions, and auditory cues over written texts.

For auditory learners, text-heavy content may pose a challenge because they are less likely to retain information read silently. Instead, they learn better when they read aloud, listen to explanations, or associate learning with sound cues such as music, clapping, or rhythm. For example, children who identify as auditory learners often excel at memorizing song lyrics and following oral instructions. They may also prefer reciting poems aloud, engaging in group discussions, or listening to lectures rather than silently studying written material.

In classroom settings, auditory learners often demonstrate strengths in activities that involve oral communication. They tend to perform well in debates, oral storytelling, listening exercises, and verbal reasoning tasks. Such learners also benefit from teachers who incorporate questioning, repetition, and rhythm-based strategies into their instruction. For instance, a teacher might encourage auditory learners to create rhymes or verbal associations to remember key concepts.

Importantly, auditory learners often thrive in traditional school environments, where lectures and verbal explanations are central to instruction. However, in modern classrooms that emphasize multimodal teaching, teachers must balance their strategies by incorporating auditory resources such as audio recordings, discussions, and collaborative dialogues to accommodate this learning style effectively. By understanding the characteristics of auditory learners, educators can design lessons that enhance engagement and comprehension, ensuring that these students are not disadvantaged in environments where text or visuals dominate.

2.3.1.2 Characteristics of Auditory Learners

Understanding the unique traits of auditory learners is crucial for both teachers and students. For educators, identifying these characteristics enables them to design instructional strategies that align with students' natural preferences, thereby improving comprehension and retention. For learners, recognizing their own strengths allows them to adopt study methods that maximize their potential. Auditory learners process information primarily through listening and verbal interaction, and they often demonstrate distinct behaviors in learning environments.

Some defining characteristics of auditory learners include:

- **Preference for verbal input:** They learn best when information is delivered orally, such as through lectures, discussions, or storytelling.
- **Strong auditory memory:** They can easily recall spoken instructions, conversations, or lessons, often outperforming peers in activities that rely on listening.
- **Confidence in oral expression:** These learners frequently excel in debates, speeches, and oral presentations due to their ability to articulate ideas clearly.
- **Keen listening skills:** They can interpret tone, pitch, and rhythm effectively, allowing them to capture nuances in spoken communication.
- **Dependence on spoken directions:** They prefer being guided verbally rather than reading step-by-step instructions.
- **Storytelling and communication strengths:** Many auditory learners enjoy telling stories, participating in dialogues, and engaging in group discussions.
- **Sensitivity to sound:** They are often easily distracted by background noise or, conversely, by silence.

- **Affinity for music and rhythm:** Music often plays a significant role in their learning, helping them memorize and internalize concepts.
- **Tendency to verbalize thoughts:** They may whisper to themselves when reading, repeat key points aloud, or talk through problem-solving processes.
- **Difficulty with text-heavy materials:** Written directions and silent reading may be more challenging, prompting them to prefer listening activities instead.
- **Emotional expression through speech:** They often use tone, volume, and pitch to convey emotions and emphasize meaning.

Collectively, these characteristics highlight the importance of tailoring learning experiences to auditory preferences. Teachers who integrate storytelling, oral repetition, discussion-based tasks, and auditory learning aids can help auditory learners thrive.

2.3.1.3 Benefits of Auditory Learning

Every learning style carries unique advantages that can enrich the educational process, and auditory learning is no exception. Whether a student primarily identifies as an auditory learner or simply engages with auditory strategies as part of a blended learning approach, adopting this style offers several benefits.

i) Development of critical thinking skills

When learners receive information in their preferred style, they are more attentive and engaged. This attentiveness naturally leads to deeper processing of the material, encouraging them to question, analyze, and synthesize information. Engaging with lectures, discussions, and oral explanations pushes auditory learners to listen actively and evaluate ideas critically.

ii) Strengthened listening abilities

Auditory learning enhances the skill of active listening, which is vital in both academic and real-world contexts. Regular exposure to spoken content—such as

debates, conversations, or audio recordings—trains learners to identify patterns in speech, recognize transitions between ideas, and interpret meaning accurately. Over time, this practice sharpens their ability to extract relevant information and improves overall communication competence.

iii) Improved comprehension and brainstorming

Because auditory learners excel at following oral instructions, they are also effective in brainstorming sessions and group discussions. Listening attentively helps them connect diverse ideas, clarify ambiguities, and generate new perspectives. This collaborative skill makes auditory learners valuable contributors to group projects and problem-solving activities.

iv) Enhanced memory retention

One of the strongest benefits of auditory learning is the ability to recall spoken information with accuracy. Research suggests that auditory learners can retain up to 75% of what they hear, making lectures, oral drills, and discussions powerful tools for knowledge retention. Unlike learners who rely heavily on visual aids, auditory learners can absorb and remember key ideas from listening alone.

v) Increased interactivity and social engagement

Auditory learners naturally gravitate toward dialogue and conversation, which makes them highly interactive in classroom settings. Their inclination to ask questions, exchange ideas, and seek clarifications fosters collaboration and enhances peer-to-peer learning. This interactivity also supports confidence-building, as auditory learners often become strong communicators in both academic and social environments.

Taken together, these benefits demonstrate that auditory learning not only strengthens individual academic performance but also fosters essential life skills such as communication, critical thinking, and teamwork.

2.4 Visual Teaching and Learning Resources

2.4.1 Visual Aids

Visual teaching and learning resources are indispensable tools in contemporary education. They provide learners with concrete representations of abstract concepts, making lessons more engaging, accessible, and memorable. Visual aids encompass a broad spectrum of tools, including charts, graphs, diagrams, photographs, videos, infographics, and digital simulations. Their primary function is to present information in a way that complements verbal instruction, thereby supporting comprehension and enhancing learning outcomes (Taylor & Wilson, 2024; Brown, 2022; Smith & Lee, 2021).

The effectiveness of visual aids has been well documented. Chen (2020) notes that visual representations significantly improve information retention by appealing to learners' visual memory. When students encounter content visually, they are more likely to form lasting cognitive associations, which strengthens long-term recall. Similarly, Brown and Davis (2021) highlight that interactive visual tools such as smartboards and virtual simulations foster active participation and collaboration, allowing students to take a hands-on role in their own learning.

In digital learning contexts, visual aids are even more critical. With the rise of online and hybrid education, digital tools such as animations, virtual tours, and interactive diagrams have become key components of effective instruction (Jones & Smith, 2022). These tools not only bridge the gap created by physical distance but also provide immersive experiences that traditional classroom methods cannot easily replicate.

Visual materials also stimulate creativity and critical thinking. Kim and Park (2022) argue that visual storytelling encourages students to interpret information,

construct meaning, and communicate their understanding in innovative ways. For instance, learners tasked with creating visual narratives or analyzing infographics develop higher-order thinking skills, including synthesis, evaluation, and problem-solving.

Additionally, visual resources enhance inclusivity in education. Chen and Liu (2023) stress that visual materials support students with diverse needs, including English language learners and those with learning difficulties. Because images and symbols often transcend linguistic barriers, visual resources provide an accessible medium for learners who may struggle with text-based content.

Looking ahead, educational researchers are exploring advanced technologies such as augmented reality (AR) and virtual reality (VR) to expand the potential of visual learning. These technologies create immersive experiences that simulate real-life contexts, offering learners the chance to explore and apply knowledge in dynamic ways. Nevertheless, challenges persist, including ensuring equal access to digital tools, designing inclusive visual resources, and training teachers to integrate these materials effectively. In summary, visual teaching and learning resources are powerful enablers of modern education. They enhance comprehension, foster creativity, improve inclusivity, and increase engagement across a variety of learning environments. By continuing to innovate and invest in visual technologies, educators can create dynamic classrooms that prepare learners for the demands of a rapidly evolving, visually-driven world.

2.4.1.1 Benefits of Visual Learning

Visual learning strategies have increasingly been recognized as transformative tools in modern education. They provide a strong cognitive scaffold that enables learners to build deeper understanding, bridge abstract ideas with tangible experiences,

and develop higher levels of intellectual engagement (Main, 2023). Visual approaches to teaching are particularly powerful because the human brain is naturally wired to process and store visual information more efficiently than verbal data alone. This innate ability makes visual resources critical in strengthening comprehension and retention across subject areas.

The following are detailed benefits of visual learning:

i. Enhanced Comprehension

Visual learning simplifies the process of breaking down complex ideas. Concepts that might otherwise appear abstract or overwhelming—such as mathematical formulas, scientific theories, or historical timelines—become more accessible when represented through diagrams, flowcharts, or models. For example, a life cycle chart in biology makes the concept of reproduction more concrete than a purely textual explanation.

ii. Improved Retention

Studies show that combining visual inputs with verbal explanations improves memory encoding and retrieval. The brain tends to retain visual cues longer, which helps learners recall information during assessments or real-life applications. Visual memory aids, such as mind maps or infographics, act as long-term anchors that reinforce learning outcomes.

iii. Increased Engagement

Learners are more likely to participate and maintain attention when content is presented visually. This is because visuals stimulate curiosity and provide a sense of novelty. For example, turning a dry statistical report into colorful graphs can spark interest and motivate students to interact more actively with the subject.

iv. Fostering Higher-Order Thinking

Visual learning encourages learners to go beyond memorization and engage in analytical processes. When presented with diagrams, learners must interpret, compare, and synthesize information. This promotes higher-order thinking skills such as problem-solving, evaluation, and critical reasoning.

v. Supporting Diverse Learning Styles

Not every student thrives through verbal instruction. Some learners possess strong spatial or artistic intelligence, and visual strategies cater to these differences. By incorporating charts, models, or digital tools, educators ensure that students with diverse learning strengths are equally supported.

vi. Clarifying Learner-Generated Explanations

Learners are often better able to articulate their understanding when asked to produce their own visual representations, such as drawing concept maps or creating diagrams. This process deepens comprehension, as students translate abstract thoughts into concrete visual formats.

vii. Developing Spatial Abilities

Engaging regularly with visual resources improves learners' spatial reasoning. This skill is particularly critical in disciplines such as architecture, engineering, mathematics, and the natural sciences, where the ability to mentally manipulate shapes and patterns is essential.

Main (2023) further asserts that embedding visual strategies into formal education, from elementary school to higher education, leverages innate human cognition to shift learners away from rote memorization. Instead, they develop meaningful and analytical relationships with academic content. This method is especially beneficial for adolescents and young adults, whose cognitive abilities are

developing toward more abstract reasoning. Visual learning resources are invaluable in education. They serve as creative and effective teaching aids, enriching classroom instruction in both face-to-face and virtual contexts. By adopting these strategies, educators not only increase comprehension and retention but also nurture critical thinking and creativity, thereby fostering academic excellence across disciplines.

2.4.2 Textbooks

Textbooks remain one of the most fundamental and enduring teaching and learning resources in educational systems worldwide. They provide structured, comprehensive, and curriculum-aligned content that serves as a guide for both teachers and learners (Smith, 2020). Despite the rise of digital platforms and open educational resources, textbooks continue to play a pivotal role in ensuring consistency, organization, and accessibility of knowledge.

According to Jones and Brown (2021), textbooks facilitate teacher-led instruction by providing a common point of reference in the classroom. They organize content into logical sequences, ensuring that learners progress systematically through key topics. This structure allows teachers to focus on instructional strategies while maintaining alignment with national or institutional curriculum standards.

Johnson et al. (2022) highlight that high-quality textbooks significantly contribute to student comprehension and achievement. When designed effectively, they enhance learners' ability to retain knowledge, apply it to problem-solving, and make connections across subjects. For example, mathematics textbooks often integrate step-by-step examples, practice exercises, and real-world applications to reinforce understanding.

In addition, modern textbooks are increasingly incorporating multimedia features such as images, diagrams, interactive exercises, and online supplements. Lee

and Lee (2023) argue that these enhancements allow textbooks to adapt to diverse student needs and learning styles. For instance, learners who benefit from visuals can rely on diagrams, while those who prefer reading detailed explanations can focus on text. In summary, textbooks remain indispensable in formal education. They provide reliable, structured content, support teacher instruction, and offer students a resource they can revisit independently. With continuous innovations in design and integration of digital tools, textbooks are evolving to remain relevant in meeting the demands of contemporary learning environments.

2.5 Audio-Visual Teaching and Learning Resources

Audio-visual (AV) teaching and learning resources represent one of the most dynamic innovations in modern education. By combining auditory and visual elements, they provide a multisensory experience that captures learner attention, fosters deeper understanding, and accommodates diverse learning preferences. Examples include educational videos, animations, podcasts, documentaries, and interactive digital presentations.

Smith and Jones (2020) note that AV resources stimulate both the visual and auditory senses, which enhances cognitive processing and facilitates the integration of knowledge into long-term memory. The dual coding of information (through sight and sound) makes it easier for learners to recall concepts, apply them in real-life contexts, and engage more actively during instruction.

Recent studies affirm the effectiveness of AV resources in promoting active learning. Brown et al. (2021) demonstrated that lessons enriched with AV materials fostered greater student participation, collaboration, and critical thinking. For instance, a science teacher using an animated simulation of the human circulatory system not

only illustrates processes more vividly but also prompts learners to ask questions and explore concepts beyond the textbook.

Another significant advantage of AV resources is their role in fostering inclusivity. Garcia and Patel (2022) emphasize that AV materials can be adapted to meet the needs of learners with disabilities or language barriers. For example, captions assist hearing-impaired students, while audio descriptions support visually impaired learners. Similarly, English language learners can benefit from subtitles and contextual imagery to better understand complex content.

Furthermore, AV tools encourage collaborative learning. Lee and Kim (2023) highlight that group projects involving multimedia presentations or video analysis cultivate teamwork, communication, and peer learning. By engaging with AV content, students develop soft skills such as public speaking, active listening, and negotiation.

With rapid advancements in technology, AV resources are expanding into new frontiers. Virtual reality simulations, podcast-based lectures, and interactive multimedia platforms are reshaping the educational landscape. These innovations create opportunities for experiential and personalized learning, where students can immerse themselves in realistic environments or revisit content on-demand. Nonetheless, challenges such as unequal access to technology, limited digital literacy, and cultural biases in content design remain pressing issues. In conclusion, audio-visual teaching and learning resources are indispensable in modern pedagogy. They enrich the learning experience by enhancing comprehension, fostering engagement, and ensuring inclusivity. By thoughtfully integrating AV tools into instruction, educators can create immersive, student-centered learning environments that prepare learners for academic success and lifelong learning in a rapidly evolving world.

2.5.1 Digital resources

Digital resources such as online videos and interactive websites are increasingly popular for engaging learners (Johnson et al., 2022). They can enhance learning through multimedia features (Lee & Lee, 2023). Digital resources have transformed the landscape of education, offering innovative tools and platforms to enhance teaching and learning experiences (Wang & Chen, 2020). These resources encompass a wide range of interactive content, applications, and multimedia elements that can engage learners and promote active learning. According to Li (2021), digital resources provide educators with the flexibility to create personalized learning experiences tailored to individual student needs. By incorporating simulations, videos, and online assessments, teachers can deliver dynamic and interactive lessons that cater to diverse learning styles. Research by Garcia and Martinez (2022) highlighted the benefits of digital resources in promoting collaborative learning and fostering student engagement. Virtual collaboration tools, discussion forums, and online group projects enable learners to communicate, share ideas, and work together on assignments, enhancing their critical thinking and problem-solving skills.

Furthermore, Cho and Kim (2023) emphasize the accessibility of digital resources in facilitating remote learning and providing continuous support to learners outside the classroom. Cloud-based platforms, e-books, and online tutorials enable learners to access educational materials anytime, anywhere, promoting self-directed learning and autonomy. In conclusion, digital resources play a crucial role in modern education, offering dynamic and interactive tools that enhance teaching effectiveness, engage learners, and support diverse learning styles.

2.5.2 Educational games

Games are effective in promoting student engagement, motivation and knowledge retention (Martinez & Jones, 2020; Williams, 2020). They can facilitate active learning and problem-solving skills (Garcia and Nguyen, 2024). Educational games have emerged as powerful tools for promoting student engagement and enhancing learning outcomes in the classroom (Clark & Turner, 2023). By integrating elements of gameplay into educational content, instructors can create immersive and interactive learning experiences that captivate learners' interest and motivate active participation. Game-based learning scenarios not only make learning more enjoyable but also provide learners with opportunities to apply critical thinking skills and problem-solving strategies in a dynamic and challenging environment. Studies by Liu et al. (2021) highlighted the role of educational games in facilitating collaborative learning and fostering social interactions among learners. Multiplayer games and collaborative game-based activities promote teamwork, communication, and peer-to-peer support, creating a sense of shared achievement and camaraderie among learners. Educational games also offer a valuable platform for formative assessment and personalized feedback (Smith & Brown, 2020). Game analytics and performance metrics can provide instructors with insights into learners' progress, learning behaviors, and areas of strength and improvement, enabling them to tailor instruction and support individual learning needs more effectively.

In short, educational games represent a dynamic and innovative approach to teaching and learning, engaging learners in meaningful and enjoyable learning experiences while promoting collaboration, critical thinking, and personalized learning outcomes.

2.5.3 Simulations

Simulations offer realistic and interactive learning experiences (Clark, 2021). Simulations have been widely recognized as effective tools for experiential learning and skill development in various academic disciplines (Wu & Chen, 2019). By simulating real-world scenarios in a controlled environment, educators can provide pupils with opportunities to apply theoretical knowledge, hone decision-making skills, and gain practical experience. Research by Johnson and Smith (2018) underscored the benefits of using simulations in education, particularly in enhancing learners' ability to transfer learning to real-world contexts. Simulations engage learners in active learning, enabling them to explore complex problems, experiment with different strategies, and observe the consequences of their decisions in a risk-free setting. Furthermore, studies by Lee et al. (2020) emphasized the role of simulations in fostering critical thinking and problem-solving skills. Through interactive simulations, learners are challenged to analyze information, make informed judgments, and adapt their approaches based on feedback and outcomes, promoting deeper levels of learning and understanding.

Simulations also promote interdisciplinary learning and collaboration among learners from diverse backgrounds (Brown & Davis, 2021). Multi-disciplinary simulations bring together learners with varying expertise and perspectives, encouraging teamwork, communication, and the exchange of ideas, which are essential skills for success in today's complex and interconnected world. Incorporating simulations into the curriculum not only enhances learners' engagement and motivation but also equips them with practical skills and experiences that are directly applicable to their future careers (Smith et al., 2023). By immersing learners in simulated environments that mirror real-world challenges and contexts, educators can better prepare them for the demands of their professional lives.

2.5.4 Manipulatives

Manipulatives like blocks or mathematical tools assist in concrete learning for young pupil learners. They promote hands-on exploration and understanding of abstract concepts (Evans & Brooks, 2021). By incorporating a variety of teaching and learning resources, Early Childhood Education teachers can cater to diverse learning styles and enhance the overall learning experience of pupils.

Manipulatives are physical objects that are used as hands-on tools to support learning and understanding of abstract concepts in mathematics and other subjects (Sowder, 2007). By providing learners with concrete materials to manipulate, educators can facilitate the exploration of mathematical ideas, promote problem-solving skills, and enhance conceptual understanding. Studies by van de Walle (2010) emphasized the effectiveness of manipulatives in supporting learners' development of mathematical reasoning and problem-solving abilities. Through hands-on experiences with manipulatives, learners can make connections between concrete representations and abstract mathematical symbols, helping them grasp complex concepts and procedures more effectively. Manipulatives also foster collaborative learning and peer interaction among learners (Dietiker, 2016). When working with manipulatives in groups, learners can share their strategies, discuss their reasoning, and collaborate on solving problems, promoting communication, teamwork, and the exchange of ideas among peers.

Incorporating manipulatives into the curriculum can benefit learners of all levels, including those with diverse learning needs (Copley, 2014). Manipulatives provide a multi-sensory approach to learning, which can support learners with different learning styles, abilities, and backgrounds in developing a deeper understanding of mathematical concepts. Overall, the use of manipulatives as teaching and learning resources can enhance student learning outcomes, promote conceptual understanding, and create a

more engaging and interactive learning environment in the classroom (Matthews & Rutherford, 2019).

2.6 Importance of Teaching and Learning Resources in Early Childhood Education

Early childhood represents a crucial period in a child's growth, during which the foundation for lifelong learning, social interaction, and academic achievement is established. The provision of rich and stimulating educational experiences during this stage is vital not only for the child's individual development but also for the future progress of society as a whole. One of the most influential elements that determine the quality of learning in early childhood is the teaching and learning environment. A well-designed learning environment, enriched with relevant instructional resources, provides opportunities for children to actively explore, experiment, and construct knowledge through direct interaction with materials. In this sense, the environment itself becomes a "silent teacher," guiding and shaping the learning experience. Research highlights that early learning is most effective when classrooms are equipped with well-organized teaching and learning resources that encourage engagement and interaction (Omaiyo, 2013; Okoruwa & Oladebinu, 2017).

Teaching and learning resources are not merely supplementary; they lie at the core of effective pedagogy in early childhood education. They support children's curiosity, provide multiple pathways for engagement, and help educators design lessons that are accessible and meaningful. According to Shonkoff and Phillips (2000), the centrality of resources in early childhood education is rooted in their ability to capture children's attention, stimulate their imagination, and nurture essential cognitive, social, and emotional skills. Without appropriate resources, even well-trained teachers may struggle to present abstract concepts in ways that young learners can easily grasp.

Teaching resources come in a wide variety of forms—from simple, low-cost items like flashcards and charts to more complex tools such as multimedia presentations or educational software. Regardless of their form, their primary purpose is to make lessons engaging, provide clarity, and support differentiated instruction. For example, a teacher might use storytelling and puppets to introduce language skills, employ puzzles to promote problem-solving, or show an animated video to help children visualize scientific processes. Such tools not only make lessons interesting but also ensure that children retain what they learn by engaging their senses and emotions. They also provide avenues for independent exploration, as children can manipulate resources at their own pace, thereby reinforcing new skills through repetition and hands-on experience (OpenLearn Create, 2020).

Importantly, teaching and learning resources allow educators to address diverse learning needs within a classroom. Children vary in their learning preferences—some may be auditory learners, while others respond better to visual or kinesthetic methods. By incorporating a wide range of resources such as worksheets, group activities, videos, and play materials, teachers can adapt their instruction to suit the abilities and styles of each child. This differentiation ensures inclusivity and helps every child progress at their own pace.

Key Contributions of Teaching and Learning Resources in Early Childhood Education

1. **Enhancing Experiential Learning** – Learning resources provide opportunities for children to engage directly with concepts through hands-on activities. For instance, manipulatives in mathematics allow children to experiment with numbers and patterns rather than merely memorizing them (Brighton Montessori, 2024).

2. **Fostering Creativity and Imagination** – Open-ended materials such as blocks, clay, and art supplies encourage children to create, invent, and imagine, thereby cultivating creativity that supports problem-solving in later years.
3. **Promoting Language Development** – Storybooks, flashcards, and audiovisual aids enrich vocabulary, comprehension, and communication skills by immersing children in interactive language experiences.
4. **Supporting Social and Emotional Development** – Shared use of learning resources during group tasks nurtures collaboration, empathy, patience, and conflict-resolution skills (Johnson et al., 2022).
5. **Differentiating Instruction** – A variety of resources allow teachers to tailor lessons to multiple learning styles, ensuring inclusivity and equitable access to knowledge.
6. **Cultivating STEM Skills and Inquiry-Based Learning** – Engaging children with science kits, building blocks, and exploratory games builds early foundations in science, technology, engineering, and mathematics. Studies by Lin and Liu (2024) reveal that these activities foster curiosity, critical thinking, and a lasting interest in inquiry-based learning.

In the Ghanaian and wider sub-Saharan African context, research affirms that the effective use of teaching and learning resources significantly enhances pupil performance. However, resources alone are insufficient; they must be combined with strong pedagogical practices such as questioning, collaborative learning, and guided discussions (T-TEL, 2016).

According to T-TEL (2016), the benefits of TLRs can be summarized as follows:

- a) **Capturing Attention and Motivation:** Teaching materials spark children's curiosity and sustain their interest, making lessons dynamic and enjoyable.

b) **Clarifying Abstract Ideas:** Complex or abstract concepts are made more concrete through models, pictures, and diagrams, which simplify understanding.

c) **Providing Opportunities for Practice and Application:** Materials that involve doing, such as games, role play, or construction tasks, encourage children to apply new skills actively, transforming learning into a meaningful process rather than passive memorization.

2.7 Current Practices of Teaching Material Usage in Early Childhood Education in Ghana

In Ghana, the use of teaching and learning resources has become an integral aspect of early childhood education (ECE), reflecting a growing recognition of their importance in shaping meaningful learning experiences. Educators are increasingly adopting diverse strategies to integrate resources that align with local contexts, cultural values, and contemporary pedagogical approaches. These practices not only enrich academic outcomes but also promote the holistic development of children.

a) Use of Local Resources

A common practice among Ghanaian educators is the creative use of locally available materials, including natural objects, artifacts, and culturally relevant tools. For instance, shells, stones, gourds, and woven items are repurposed as instructional aids. Such resources not only reduce costs but also strengthen children's connection to their cultural heritage and environment, thereby fostering identity, pride, and belonging (Adu-Gyamfi & Dapaah, 2018).

b) Interactive Learning Aids

Flashcards, puzzles, counting beads, and board games are widely used to make lessons interactive. These aids enhance problem-solving abilities, develop fine motor coordination, and encourage active engagement. Research shows that such hands-on

tools build logical thinking and cognitive flexibility among preschool learners (Owusu-Ansah & Asare, 2020).

c) Visual Aids and Charts

Charts, posters, drawings, and pictorial flashcards are widely applied in Ghanaian classrooms to reinforce verbal instruction. Visual aids are particularly effective in supporting memory retention, clarifying concepts, and catering to children who learn best through sight (Boadi-Kusi & Ampiah, 2019).

d) Play-Based Learning Materials

Play is central to early childhood development, and educators in Ghana often incorporate toys, blocks, dolls, and role-play props to facilitate experiential learning. These resources provide avenues for creativity, imagination, and social interaction while strengthening problem-solving skills and emotional resilience (Mensah & Nyame, 2017).

e) Technology Integration

Although still developing, the integration of technology in Ghanaian ECE settings is steadily increasing. Tools such as tablets, educational apps, and interactive whiteboards are used to expose children to digital learning experiences. Gyamfi and Appiah (2021) note that technology-based teaching materials expand learning opportunities, build early digital literacy, and prepare children for future technological environments. The use of teaching materials in Ghanaian early childhood education is marked by a balance between traditional/local practices and modern innovations. By combining indigenous resources with interactive and technology-driven tools, educators are able to create dynamic, inclusive, and culturally relevant learning environments. These practices not only promote academic growth but also nurture creativity, problem-solving, and holistic

development, ensuring that young learners are better prepared for future educational and social demands.

2.8 Challenges Faced by Early Childhood Education Teachers in Integrating Teaching Materials into Lesson Delivery

The effective integration of teaching and learning materials (TLMs) into early childhood education (ECE) is often hindered by multiple barriers that stem from structural, pedagogical, and contextual factors. While instructional resources have the potential to enrich classroom experiences and improve learner outcomes, teachers in ECE settings encounter challenges that limit their ability to utilize them optimally. The Teachers Portal (2023) identifies ten major constraints—namely: lack of resources, inadequate training, limited access to technology, curriculum mismatch, language and cultural barriers, lack of maintenance, large class sizes with learner diversity, teacher workload, resistance to change, and logistical challenges. Each of these issues significantly shapes how teachers approach lesson planning and classroom delivery.

1. Lack of Resources

A shortage of instructional resources remains one of the most pressing challenges in early childhood education. Many schools, especially those in low-income or rural communities, operate under severe financial constraints, leaving them unable to provide sufficient books, manipulatives, digital tools, or age-appropriate play materials. Without these essentials, teachers are often forced to improvise, which may compromise the quality of instruction (Hedges & Cooper, 2018). The absence of adequate resources limits teachers' creativity, reduces learner engagement, and restricts the variety of teaching methods they can employ. Furthermore, when classrooms lack stimulating materials, learners are denied opportunities for hands-on exploration, which

is critical in early cognitive and socio-emotional development. This scarcity also affects teacher morale, as educators may feel frustrated or demotivated by their inability to provide enriching experiences for their pupils. Ultimately, inadequate resources lead to missed opportunities for experiential learning and hinder the development of problem-solving and critical-thinking skills.

2. Inadequate Training

Possessing teaching materials does not automatically translate into effective use; teachers need adequate training to maximize their instructional value. Unfortunately, many ECE practitioners report insufficient professional development in this area, leaving them uncertain about how best to integrate various materials into lesson delivery (Copple & Bredekamp, 2017). Well-trained teachers are more likely to use materials effectively to support diverse learning outcomes, while those lacking preparation may either underutilize or misuse resources. A lack of training also contributes to low confidence, where teachers hesitate to adopt new strategies for fear of failure (Emmer & Stough, 2017). In contrast, targeted workshops and continuous professional support equip educators with the knowledge and confidence to adapt teaching materials to meet learners' developmental and cultural needs. Without such investment, the potential benefits of instructional resources remain unrealized.

3. Limited Access to Technology

In today's digital age, technology is a powerful enabler of interactive and personalized learning. However, many early childhood institutions face limited access to essential digital tools such as computers, tablets, projectors, and reliable internet connections (Burnett, 2017). This challenge is particularly acute in underfunded schools and in contexts where infrastructural development is slow. The lack of technological resources widens educational inequalities, as children from privileged backgrounds may have

access to digital learning at home, while their peers from disadvantaged communities are left behind (Warschauer & Matuchniak, 2017). Teachers, too, are affected, as they may lack both the tools and the training necessary to integrate technology meaningfully. Consequently, learners miss opportunities to engage with interactive simulations, digital storytelling, and multimedia resources that could enhance literacy, numeracy, and critical thinking.

4. Mismatch with Curriculum

Instructional resources are most effective when they align with the curriculum and support the intended learning outcomes. However, many teachers struggle with materials that do not match the curriculum's scope, sequence, or objectives (Hedges & Cooper, 2018). Such misalignment can confuse learners, reduce instructional coherence, and waste valuable teaching time. For example, if the curriculum emphasizes problem-solving in mathematics but the available materials are rote-focused, teachers may be unable to deliver lessons in ways that foster higher-order thinking. This challenge is compounded when teachers lack the autonomy to adapt or design their own resources, leaving them constrained by rigid curricula (Graue, 2017). Misaligned resources also risk disengaging learners, as they may perceive lessons as irrelevant or disconnected from real-life experiences.

5. Language and Cultural Barriers

ECE classrooms are increasingly diverse, with children representing varied linguistic and cultural backgrounds. Instructional materials that fail to reflect this diversity may alienate learners and impede comprehension (Cummins, 2017). For instance, when resources are presented exclusively in a dominant language, children who are English language learners—or those from minority language groups—struggle to fully participate. Similarly, cultural insensitivity in materials can marginalize learners,

weakening their sense of belonging. Teaching materials that ignore local traditions, values, or everyday experiences may appear abstract or irrelevant. Conversely, culturally responsive resources not only enhance comprehension but also validate learners' identities and experiences, fostering inclusion (Gay, 2018). To address this barrier, teachers need professional development in culturally responsive pedagogy and closer collaboration with families and communities.

6. Lack of Maintenance

Teaching materials require regular upkeep to remain functional and safe. In practice, however, many schools lack systems for maintaining equipment, updating textbooks, or repairing digital tools. Broken toys, outdated charts, or malfunctioning projectors diminish the quality of learning and often leave teachers scrambling for alternatives (Hedges & Cooper, 2018). The neglect of maintenance also poses safety risks, particularly with playground equipment or electrical devices. Furthermore, teachers' morale can decline when they are forced to work with inadequate or unsafe materials, leading to frustration and reduced effectiveness. Establishing policies for systematic maintenance and allocating budgets for replacements or upgrades are therefore critical in ensuring instructional continuity and learner safety.

7. Class Size and Learner Diversity

Large class sizes make individualized instruction difficult, particularly in early childhood education, where children require close attention and differentiated support. Managing large groups while attempting to integrate instructional materials can overwhelm teachers, leaving limited opportunities for learners to engage meaningfully with the resources (Blatchford & Blatchford, 2017). In addition, learner diversity within large classes—ranging from differences in ability levels and prior knowledge to linguistic and cultural backgrounds—requires teachers to adopt multiple strategies

simultaneously (Tomlinson, 2017). Without adequate support, teachers may experience stress and burnout, reducing the quality of lesson delivery. Differentiated instruction, smaller class sizes, and adequate teacher aides are necessary to address this challenge effectively.

8. Teacher Workload

The workload of early childhood teachers often extends beyond classroom instruction to include lesson planning, administrative tasks, parent communication, and professional development. When workloads are excessive, teachers may lack the time and energy needed to design lessons that creatively integrate teaching materials (Kyriacou, 2017). High workloads contribute to stress, burnout, and reliance on routine teaching methods, undermining innovation and effectiveness (Hakanen & Bakker, 2017). This situation not only affects instructional quality but also threatens teacher retention. Providing supportive working conditions, reducing unnecessary administrative burdens, and ensuring access to collaborative planning time are key strategies for reducing the negative impact of workload on resource integration.

9. Resistance to Change

Not all teachers embrace innovation readily. Resistance to change often arises from a preference for familiar teaching methods, fear of failure, or skepticism about the effectiveness of new approaches (Fullan, 2017). Teachers who resist integrating new instructional materials may default to traditional methods, thereby limiting the opportunities for learners to benefit from innovative resources. Such resistance may also stem from inadequate training or lack of institutional support (Hall & Hord, 2017). Without encouragement, mentorship, and a culture of experimentation, teachers may find it difficult to adapt to changing educational demands. Encouraging professional collaboration, peer learning, and leadership support can help overcome this barrier.

10. Logistical Issues

Logistical challenges such as inadequate storage, poor distribution of resources, and disorganized systems for borrowing and returning materials also hinder effective integration. Teachers may waste valuable instructional time searching for resources or adjusting plans due to unavailable materials (Darling-Hammond & Bransford, 2017).

Additionally, when schools lack clear systems for managing instructional resources, materials may be underutilized, misused, or damaged. These logistical frustrations increase teacher stress and reduce motivation (Kyriacou, 2017). Addressing this challenge requires establishing efficient management systems, proper storage facilities, and clear policies on the use and accountability of teaching materials

2.9 Key Determinants of Teachers' Use of Teaching and Learning Resources

The effective use of teaching and learning resources (TLRs) is central to quality education, particularly in early childhood and basic education settings. These resources enrich instruction, make abstract ideas concrete, and provide opportunities for learners to engage in interactive experiences that promote deeper understanding. However, teachers' decisions regarding when, how, and which resources to employ are influenced by several interrelated factors. Key determinants include classroom space, the prevailing school culture, the teacher's personal teaching philosophy, their level of professional preparation and qualifications, and the actual availability of teaching and learning resources.

1. Classroom Space

The physical classroom environment is one of the strongest predictors of how teachers engage with instructional resources. Adequate space not only determines the kind of resources that can be used but also influences the teaching methods teachers adopt. A spacious and well-organized classroom encourages the use of varied resources

such as group projects, manipulatives, and role-play materials that promote active and collaborative learning. In contrast, a cramped, cluttered, or poorly lit environment may restrict teachers to lecture-based or desk-bound instruction, limiting creativity and student participation.

Furthermore, the presence of digital infrastructure within the classroom, such as projectors, interactive boards, or computer terminals, allows teachers to integrate multimedia resources including educational films, podcasts, and simulations. When such tools are absent, teachers often default to traditional chalk-and-talk methods or rely heavily on textbooks. The flexibility of classroom furniture also plays a role; movable desks and chairs create opportunities for group activities, discussions, and practical demonstrations, whereas fixed seating arrangements can constrain interactive pedagogies.

Finally, the classroom's aesthetic quality—such as the use of color, wall displays, charts, and visual aids—can stimulate both teacher creativity and student engagement. A vibrant environment inspires teachers to experiment with varied resources, while dull surroundings may discourage innovation. Policymakers and school administrators therefore need to prioritize classroom design and layout when seeking to promote effective resource use.

2. School Culture

The values, traditions, and norms within a school strongly shape teachers' attitudes toward resource utilization. A school culture that emphasizes innovation, creativity, and professional experimentation creates space for teachers to try new instructional materials without fear of criticism. Such an environment fosters risk-taking and exploration, encouraging teachers to adopt both traditional and emerging resources. In contrast, rigid school systems that favor conformity and standardization

may inadvertently limit teachers' choices, discouraging the use of non-traditional or innovative tools.

Collaboration within a school community also contributes significantly. Where teachers are encouraged to share experiences and co-develop lesson materials, exposure to new resources and teaching strategies becomes commonplace. Schools that value professional learning communities tend to witness more dynamic resource use, as teachers learn from one another and adapt new practices to their unique contexts.

In addition, schools that prioritize learner-centered pedagogies motivate teachers to adopt materials that foster independence, creativity, and problem-solving among students. Conversely, schools that maintain teacher-centered approaches often emphasize rote memorization and standardized texts at the expense of diverse instructional tools. Inclusivity is another cultural aspect: schools that embrace diversity and equity push teachers to incorporate materials that reflect learners' varied cultural and linguistic backgrounds. Ultimately, a positive school culture acts as a catalyst, while an overly rigid or traditional one becomes a barrier to resource utilization.

3. Teaching Philosophy

Teachers' personal beliefs about learning—whether influenced by formal training, professional experience, or personal convictions—have a significant impact on the kinds of resources they use. Those who subscribe to constructivist or socio-cultural perspectives of learning typically employ materials that emphasize discovery, exploration, and collaborative meaning-making. These teachers tend to integrate hands-on activities, problem-solving tasks, and real-world applications into their lessons.

By contrast, teachers whose beliefs align with behaviorist principles may prefer resources that emphasize repetition, drills, and direct reinforcement, such as flashcards or structured worksheets. While neither approach is inherently superior, the choice

reflects underlying assumptions about how children learn best. Teachers' philosophies also determine whether they gravitate toward traditional print-based resources like textbooks or embrace digital and project-based tools that encourage inquiry and innovation. In short, teaching philosophy acts as an invisible filter through which teachers interpret and select available resources.

4. Teachers' Qualifications

The professional background and expertise of teachers significantly shape their ability to identify, adapt, and effectively apply teaching resources. Teachers with advanced academic training and extensive classroom experience are more likely to employ a wide range of resources and modify them to suit diverse learners' needs. Their deeper subject matter knowledge allows them to make informed decisions about which resources align best with specific learning objectives.

Pedagogical expertise also matters. Teachers who have studied contemporary teaching methods are better able to incorporate project-based or inquiry-based activities that integrate multiple resources. By contrast, those with limited pedagogical training may struggle to adapt resources creatively, leading to a narrow or mechanical use of available tools.

Technological competence is another key aspect. In today's classrooms, digital literacy determines whether teachers can effectively integrate online platforms, educational software, and multimedia resources. Teachers with strong digital skills can enhance their lessons with interactive and engaging content, whereas those with minimal exposure may avoid technology altogether, even when it is available.

Finally, teachers' attitudes and professional dispositions are crucial. Educators who demonstrate openness to new ideas, continuous learning, and reflective practice tend to be more resourceful in adopting varied materials. In contrast, teachers who hold

rigid views or resist change often restrict themselves to familiar methods, limiting opportunities for enriched instruction.

5. Availability of Teaching and Learning Resources

Even when teachers are highly motivated and well-trained, the extent to which they can use teaching and learning resources depends on their availability. Access to adequate teaching aids—whether technological, print-based, or human support—forms the foundation of effective instruction.

Digital resources such as tablets, projectors, and internet connectivity open up possibilities for interactive lessons, online research, and multimedia engagement. Similarly, access to textbooks, workbooks, games, and supplementary print materials ensures that students encounter a variety of perspectives and formats for learning. Human resources, including teaching assistants, librarians, and instructional specialists, also provide critical support by guiding teachers on how best to use materials and by alleviating workload pressures.

Financial resources cannot be overlooked. Schools with adequate funding can procure and maintain diverse instructional tools, while underfunded institutions may struggle to provide even the most basic resources. This disparity often translates into unequal learning opportunities for students across different schools or regions.

2.10 Strategies employed for effective integration of teaching materials in lesson delivery

In the realm of education, the integration of diverse teaching and learning resources plays a crucial role in enhancing lesson delivery and student engagement. This essay delves into various strategies employed for effectively integrating teaching and learning resources in lesson delivery, drawing insights from research conducted between 2018 and 2024 to exemplify best practices in educational settings.

1. Understanding the learning objectives

One of the fundamental strategies for integrating teaching and learning resources effectively is aligning them with the learning objectives of the lesson. According to research by Johnson et al. (2018), educators must have a clear understanding of the desired learning outcomes before selecting appropriate materials. By identifying the specific concepts to be covered and the skills to be developed, teachers can curate or create materials that directly support the goals of the lesson.

2. Selecting varied materials to cater to diverse learners

Research by Wong and Chen (2019) highlighted the importance of selecting a diverse range of teaching and learning resources to cater to the varied learning styles and preferences of learners. Integrating visual aids, multimedia presentations, hands-on activities, and digital resources ensures that learners with different strengths and preferences are engaged effectively. By offering a mix of materials, educators can create a dynamic and inclusive learning environment that caters to the needs of all learners.

3. Creating interactive and engaging content

Interactive and engaging content is essential for capturing learners' interest and fostering active participation in the lesson. Lai et al. (2020) emphasized the importance of incorporating interactive elements such as quizzes, simulations, and discussion prompts into teaching materials to promote student engagement. By creating opportunities for learners to interact with the content actively, educators can deepen understanding, encourage critical thinking, and reinforce learning outcomes.

4. Scaffolded integration of materials

Research by Li and Smith (2021) advocated for a scaffolded approach to integrating teaching and learning resources, where complex concepts are broken down into

manageable chunks supported by appropriate resources. By scaffolding the integration process, educators can ensure that learners are introduced to materials gradually, building on their existing knowledge and skills. This approach helps prevent cognitive overload and supports learners in navigating and making sense of the diverse materials presented during the lesson.

5. Promoting student-centered learning

An essential strategy for effective integration of teaching and learning resources is to promote student-centred learning approaches. According to Zhao and Liu (2023), shifting the focus from teacher-led instruction to student-led exploration encourages independence, critical thinking, and deeper engagement with course materials. By providing opportunities for learners to explore and interact with materials at their own pace and through various modalities, educators empower learners to take ownership of their learning journey.

6. Leveraging technology and digital resources

In the digital age, technology plays a pivotal role in enhancing the integration of teaching and learning resources. Research by Kim and Park (2024) underscored the importance of leveraging technology tools, such as learning management systems, educational apps, and online resources, to create a seamless and interactive learning experience. Integrating digital resources not only diversifies the materials available to learners but also facilitates access to up-to-date information, collaborative learning opportunities, and personalized feedback.

Effective integration of teaching and learning resources in lesson delivery is a dynamic and multifaceted process that requires careful planning, consideration of learner needs, and a commitment to student engagement. By employing strategies such as aligning materials with learning objectives, selecting diverse resources, creating interactive

content, scaffolding integration, promoting student-centred learning, and leveraging technology, educators can create enriching and impactful learning experiences for their learners. As research in the field of education continues to evolve, educators are encouraged to explore innovative approaches to integrate materials effectively and enhance the quality of instruction in diverse learning environments.

2.11. Competencies of Teachers in Using Teaching and Learning Materials

The effective use of teaching and learning materials (TLRs) is crucial for enhancing pedagogical practices and promoting learner engagement. The competencies that teachers need to successfully incorporate TLRs into their lesson delivery include:

1. Knowledge of Resources

Effective use of teaching and learning resource (TLRs) is widely recognized as a core teacher competency: it requires not only access to materials but also specific knowledge; about curriculum aims, subject matter, student thinking, and how materials mediate instruction that enables teachers to select, interpret, adapt, and enact materials in ways that support student learning (Amador et al., 2022; Choppin et al., 2020). Teachers must possess a comprehensive knowledge of available TLRs, including understanding their purpose, types, and how they can be integrated into various instructional strategies. This knowledge enables instructors to select appropriate materials based on curricular goals and the diverse needs of their learners (Smith & Brown, 2020).

2. Pedagogical Skills

Effective utilization of teaching and learning resources (TLRs) is highly dependent on teachers' pedagogical skills. Pedagogical competence enables teachers to select, adapt, and implement materials in ways that support meaningful student learning rather than simply using them as visual aids. Effective teachers demonstrate strong

pedagogical skills that allow them to create interactive and engaging learning experiences. They need to know how to adapt resources to different learning styles and cognitive levels, ensuring that all learners benefit from the materials provided). For instance, using visual aids and manipulatives can cater to both visual and kinesthetic learners. Research emphasizes that pedagogical skills include curriculum alignment, pedagogical content knowledge, adaptation of materials, interactive strategies, differentiation, and formative assessment practices (Hanum, 2023; Osei-Himah, 2022).

In Ghana, studies show that while teachers acknowledge the importance of TLRs, effective use depends largely on pedagogical skills such as lesson planning, adaptation, and classroom orchestration (Osei-Himah, 2022); thus highlighting the need for teacher professional development that goes beyond provision of materials and instead builds pedagogical capacity.

3. Assessment and Feedback

Assessment and feedback are widely recognized as core professional competencies that enable teachers to use teaching and learning resources (TLRs) effectively to promote student learning. Contemporary reviews and empirical studies emphasize that teachers need not only technical access to materials but also assessment literacy — the knowledge, skills and dispositions to gather evidence of learning from material-based tasks, interpret it, and provide actionable feedback that directs subsequent use of materials and instructional decisions (Pastore, 2023; Wolterinck et al., 2022). Major systematic reviews identify several interlocking teacher prerequisites for successful formative assessment and feedback practice: (a) content and assessment knowledge to design tasks and questions that make learning visible; (b) data-use skills to interpret student responses arising from TLR interactions; (c) feedback skills to give timely, specific, and actionable comments; and (d) professional conditions

(collaboration, time, and professional development) that sustain the practice. These prerequisites show that assessment/feedback competence is not an add-on but central to using teaching materials as diagnostic and learning tools (Schildkamp et al., 2020; Heitink et al., 2016).

4. Cultural Responsiveness

Cultural responsiveness refers to teachers' ability to understand, respect, and incorporate students' diverse cultural backgrounds into teaching practices, including the selection, design, and use of teaching and learning materials (Ogodo, 2024). Cultural responsiveness is not an "add-on" but a core competency for teachers. It influences how teachers choose, adapt, and implement TLRs and ensures that materials are inclusive, relevant, and effective across diverse classrooms. Recent research confirms that cultural responsiveness is not merely desirable, but essential for equitable, effective instruction. In a study by Mensah, et al., 2024, the authors found that teachers' multicultural teaching competency; their knowledge of and attitudes toward different cultures significantly influences whether they examine their instructional materials for cultural bias, incorporate diverse cultural examples, and plan culturally responsive strategies.

5. Professional development

The use of TLRs is indispensable in providing Quality Early Childhood Education (QECE). The professional manner in which the teacher uses TLRs and the opportunities children get to have contact with the TLRs, likewise, plays an important role in ensuring quality learning in Early Childhood Education settings (Oppong Frimpong, 2021). According to Boateng & Adu-Gyamfi (2019), teachers' professional development programmes in Ghana have been instrumental in improving educators' capacity to effectively utilize teaching and learning resources. Through targeted training

and workshops, teachers have gained the necessary skills to select, adapt, and integrate materials that align with the curriculum and cater to the diverse needs of pupils. In their study, Mensah & Osei (2020) highlighted some of the challenges faced by ECE teachers in relation to teach materials in Ghana. These challenges include limited access to up-to-date resources, inadequate training on material utilization, and a lack of funding for procurement. Addressing these challenges through continuous professional development is crucial of enhancing the quality of education in the country.

Professional development for teachers is essential in ensuring effective teaching practices and student learning outcomes. In Ghana, the role of professional development in enhancing teachers' capacity to utilize teaching and learning resources is critical. Teachers' professional development in Ghana is crucial for ensuring that educators are equipped with the knowledge and skills to effectively incorporate teaching and learning resources into their pedagogy. According to Asante and Mensah (2021), continuous training and development opportunities enable teachers to stay abreast of best practices, new technologies, and innovative teaching methods. Professional development also plays a key role in empowering teachers to adapt to changing educational trends and cater to the diverse learning needs of learners.

The availability and utilization of teaching and learning resources in Ghana vary across schools and regions. Teachers' professional development efforts should focus on enhancing educators' ability to create, adapt, and effectively use teaching aids that align with the curriculum and promote student engagement. Training programs can provide teachers with strategies for incorporating a variety of materials, including visual aids, manipulatives, and technology-based resources, to cater to different learning styles and enhance learning outcomes (Owusu-Ansah, 2023).

While professional development is essential for enhancing teachers' capacity to use teaching and learning resources effectively, Ghana faces challenges in providing quality training opportunities for educators. Limited resources, inadequate funding, and logistical constraints often hinder teachers' access to professional development programs. However, there are opportunities for improvement through collaborative efforts involving government agencies, educational institutions, and non-governmental organizations to expand training initiatives and support teachers in utilizing teaching materials effectively (Boakye, 2022).

A study by Tetteh and Ampiah (2018) examined the impact of teachers' professional development on pupil learning outcomes in Ghanaian schools. The researchers found that teachers who participated in targeted professional development programmes that focused on effective material utilization saw improvements in pupil engagement, learning outcomes and overall academic performance. This underscores the importance of ongoing training and support for educators.

Teachers' professional development thus plays a significant role in enhancing their ability to leverage teaching and learning resources for improved student learning outcomes in Ghana. By investing in continuous training programs, educators can enhance their pedagogical skills, adapt to educational innovations, and create engaging learning experiences for learners. Addressing challenges and seizing opportunities for professional development can contribute to a more robust educational system that empowers teachers to excel in their roles and facilitate holistic development among young learners.

2.12. Conceptual Framework

Figure 2.1 depicts the conceptual framework of the study. The figure shows that, in lesson delivery teachers use teaching and learning resources. In using TLRs to teach in

the classroom, teachers must acquire knowledge and skills on the usage, be aware of its types and how to use those TLRs. This could help improve learners' performance in different concepts. However, in using TLRs in lesson delivery teachers often encounter challenges which could hinder their teaching performance.

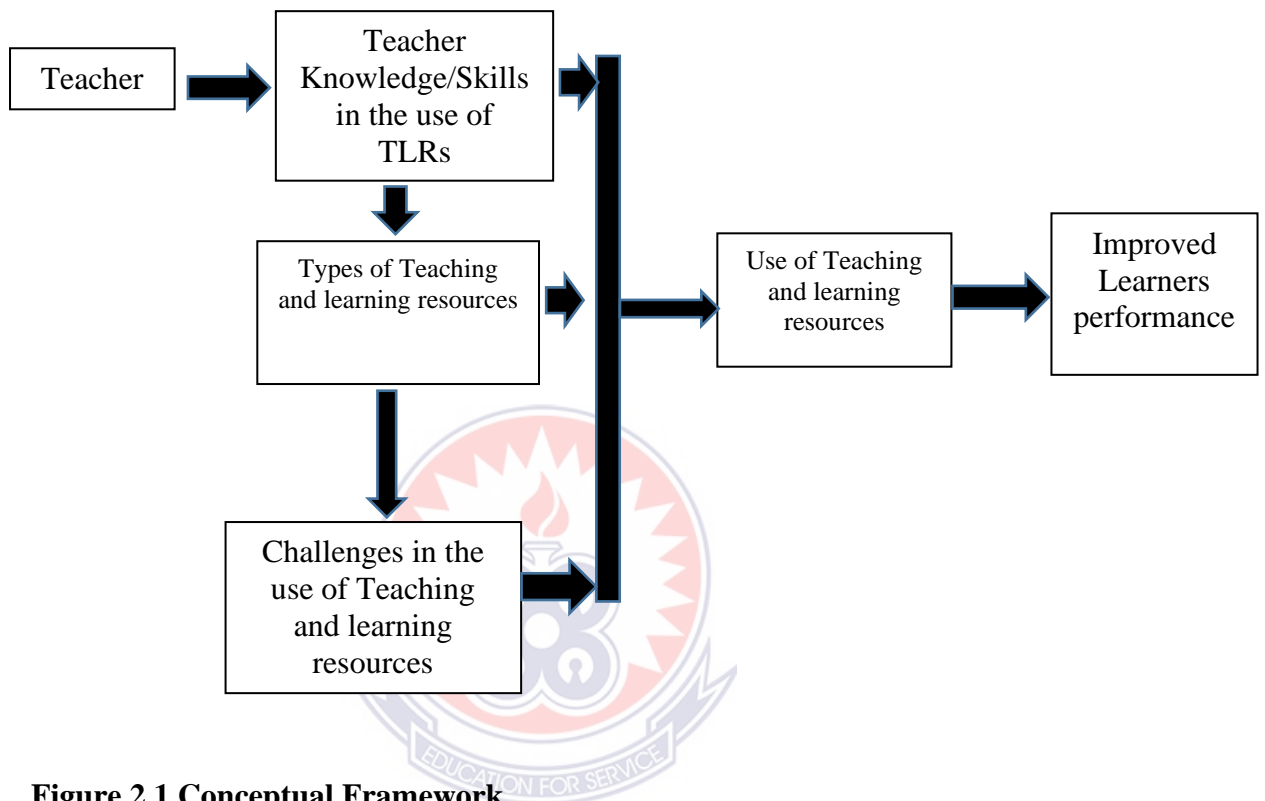


Figure 2.1 Conceptual Framework

Source: Researcher Construct (2024)

CHAPTER THREE

METHODOLOGY

3.0 Overview

This chapter outlines the methodological framework employed in the study. It presents a detailed account of the procedures adopted to collect, analyze, and interpret data in order to address the stated research objectives. The chapter explains the philosophical assumptions underpinning the research, the chosen research approach, and the specific design that guided the study. In addition, the study area, target population, sampling procedures, and data collection instruments are described, alongside the pre-testing process, issues of validity and reliability, and the procedures used to analyze the data. Ethical considerations guiding the research process are also discussed. Collectively, these methodological choices ensure that the study is not only rigorous but also credible and relevant in providing evidence on teachers' use of teaching and learning resources (TLRs) in lesson delivery at the early childhood level within the Sagnarigu Municipality.

3.1 Research Philosophy

According to Creswell and Creswell (2022), every research endeavor is shaped by philosophical assumptions that influence the choice of strategy of inquiry, methods of data collection, and the interpretation of findings. This study was grounded in pragmatism, a philosophical orientation that emphasizes practical application and the use of diverse approaches to address research problems. Pragmatism was deemed appropriate because the study sought to generate insights not only of academic relevance but also of practical value to teachers, school administrators, and policymakers in early childhood education.

The pragmatist philosophy recognizes that knowledge is rooted in lived experiences and actions, with human thought being inseparable from consequences of action (Tashakkori et al., 2020). In this paradigm, no single method of inquiry is considered sufficient; rather, the value of research lies in its ability to generate actionable solutions to real-world problems. For the present study, pragmatism provided the flexibility to combine both qualitative and quantitative techniques, thereby capturing teachers' experiences, perceptions, and practices, while also generating measurable data to support broader generalizations.

A key tenet of pragmatist epistemology is that ideas must be tested in practice and judged by their usefulness. Thus, the paradigm ensures that the outcomes of research are not confined to theoretical debates but are relevant for improving practice. In the context of this study, aligning with pragmatism ensured that findings were both methodologically robust and directly applicable in improving classroom practices, resource utilization, and policy interventions in early childhood education.

3.2 Research Approach

This study adopted a mixed methods research approach, integrating both qualitative and quantitative strategies. The mixed methods approach was chosen because it provides a more comprehensive understanding of complex educational issues than either approach alone. While quantitative methods allow for the measurement of patterns and relationships across a larger population, qualitative methods capture in-depth perspectives, contextual insights, and lived experiences. By combining the two, the researcher was able to explore not only the extent of teachers' use of TLRs but also the underlying reasons and contextual factors influencing such practices.

The use of mixed methods also enhanced the validity of the study through triangulation, as evidence from one method was corroborated by findings from another.

For example, questionnaires produced measurable data on resource availability and usage patterns, while interviews generated detailed narratives about teachers' challenges and decision-making processes. This integration created a fuller picture of the phenomenon under investigation.

Furthermore, as Creswell and Creswell (2023) and Creswell and Plano Clark (2023) note, mixed methods research enables researchers to capitalize on the strengths of both paradigms while minimizing their limitations. In this study, quantitative data provided breadth, while qualitative data added depth and richness. This synergy was particularly useful for addressing the central research questions, which required both descriptive evidence and explanatory insights into teachers' practices.

3.3 Research Design

Research design provides the blueprint for how a study is conducted, ensuring that data collection and analysis are logically aligned to answer the research questions (Creswell & Creswell, 2022). This study employed an exploratory sequential mixed methods design, a variant of mixed methods research that begins with qualitative inquiry followed by quantitative investigation.

In the first phase, qualitative data were collected and analyzed to explore teachers' experiences, challenges, and strategies regarding the use of TLRs in early childhood classrooms. This initial exploration provided insights into the context-specific realities that could not be captured by numbers alone. In the second phase, quantitative data were collected to test, elaborate, and generalize the qualitative findings across a broader population of teachers in the municipality.

The exploratory sequential design was particularly suitable because it allowed the researcher to develop quantitative instruments (such as questionnaires) that were grounded in the qualitative findings from interviews and observations. This ensured

contextual relevance and increased the reliability of measurement tools. Scholars such as Fetters and Molina-Azorín (2021) emphasize that this design is especially effective when studying complex educational issues that require both exploration and measurement. By integrating qualitative and quantitative phases sequentially, the study not only identified the challenges and opportunities in teachers' use of TLRs but also quantified the prevalence of these issues across the population. This design, therefore, provided a comprehensive and nuanced understanding of the research problem.

3.4 Study Area

The study was carried out in the Sagnarigu Municipality, located in the Northern Region of Ghana. The municipality was carved out of the Tamale Metropolitan Assembly in 2012 and has since grown into an important administrative and educational hub. It shares boundaries with Tamale Metropolis to the south, Nanton District to the east, Kumbungu and Savelugu Districts to the north, and Tolon District to the west.

Sagnarigu Municipality is characterized by a mixed economy where the majority of residents engage in agriculture and related activities, including agro-processing and livestock rearing. Other significant economic activities include hospitality services (such as hotels and restaurants), trading, transportation, artisanry, education, healthcare, and small-scale financial services. This diversity in economic activity influences the demand for educational services, as families increasingly value education as a pathway to upward mobility.

With regard to education, the municipality has a vibrant school system comprising 130 public kindergartens and primary schools, 84 junior high schools (JHS), and 4 senior high schools (SHS). Additionally, there are 42 privately owned schools, of which 30 operate kindergarten, primary, and JHS levels, while the remaining cater for kindergarten and primary only. The presence of both public and private educational

institutions reflects the community's recognition of the importance of early childhood education, as many parents enroll their children in kindergarten at an early age.

For the purpose of this study, attention was focused exclusively on public kindergarten schools within the municipality. This was because public kindergartens constitute the majority of early childhood institutions in the area and are directly influenced by government policies, resource allocations, and teacher deployment practices. Studying this context provided an opportunity to generate insights that are not only relevant for the municipality but also generalizable to other similar districts in Ghana.

3.5 Population of the Study

In every research process, identifying the target population is one of the most essential steps, since the validity of the study's findings depends on how well the chosen population represents the phenomenon under investigation. Polit and Beck (2017) describe the population of a study as the entire set of individuals, objects, or events that share a common characteristic and from which the researcher intends to draw conclusions. In other words, the population constitutes the broader group that provides the framework for data collection and analysis.

For the purpose of this study, the target population comprised all kindergarten teachers and head teachers in the Sagnarigu Municipality. This particular group was selected because of their direct involvement in the teaching, supervision, and administration of early childhood education. Teachers are the frontline implementers of curriculum and pedagogy, while head teachers oversee the effective use of resources and ensure that educational standards are maintained. Thus, their combined perspectives are vital for understanding how teaching and learning resources (TLRs) are applied in the early years.

According to records obtained from the Municipal Education Directorate, the municipality currently has about five hundred and ten (510) kindergarten teachers. Out of this number, approximately three hundred and eighty (380) are professionally trained, while the remainder consists of untrained teachers who nonetheless support classroom teaching. Additionally, one hundred and thirty (130) head teachers supervise both kindergarten and primary schools in the municipality. This broad population provided the researcher with a rich pool from which to select a representative sample for the study.

3.6 Sample and Sampling Technique

The concept of a sample in research refers to a carefully selected subset of the target population, chosen to represent the larger group in a manageable and practical way. Agyedu, Donkor, and Obeng (2011) note that a sample is made up of individuals, objects, or events that reflect the wider population, enabling researchers to make valid generalizations without studying every single member. Similarly, Fraenkel and Wallen (2021) emphasize that the adequacy of a sample size is critical since it directly influences the reliability and generalizability of findings. Larger samples tend to yield more accurate estimates, though practical constraints often make smaller but representative samples preferable.

For this study, the sample size comprised thirty (30) participants drawn from the wider population. Specifically, twenty (20) kindergarten teachers and ten (10) head teachers were included. This balance was deliberate: the teachers provided insights into classroom-level practices and challenges with TLRs, while the head teachers contributed perspectives on leadership, supervision, and institutional support.

Sampling was carried out using a combination of simple random sampling and purposive sampling techniques. The use of multiple methods helped to strengthen the

representativeness and depth of the data. First, simple random sampling was applied in selecting thirty (30) schools from the 130 kindergartens across the municipality. This method was considered appropriate because it ensured that each school had an equal chance of being included in the study, thereby reducing the risk of bias. To operationalize this, the researcher assigned numbers to all 130 kindergartens. These numbers were written on slips of paper, folded, and placed in a container. The slips were thoroughly mixed, and thirty were drawn through a lottery-style procedure. This ensured that the process was transparent, mechanical, and free from personal preference, aligning with Creswell and Creswell's (2022) view that random sampling minimizes preconceptions and increases fairness.

Once the schools had been selected, purposive sampling was used to identify the actual teacher and head teacher participants. Purposive sampling, also referred to as judgmental or criterion-based sampling, allows researchers to intentionally select individuals who possess specific qualities or experiences relevant to the research (Smith & Jones, 2022). In this study, the criteria included a minimum of three years of teaching or supervisory experience in the municipality. With the assistance of head teachers, twenty teachers who met this requirement were identified, alongside ten head teachers. The combination of these sampling techniques enabled the researcher to select participants who were both representative of the population and knowledgeable about the study focus.

3.7 Data Collection Instruments

The study employed three main instruments for data collection: an interview guide, an observation guide, and a questionnaire. The use of multiple tools provided methodological triangulation, thereby strengthening the credibility and depth of the

findings. While the interviews and observations generated rich qualitative insights, the questionnaire offered quantifiable data that could be analyzed statistically.

3.7.1 Interview Guide

The first phase of data collection involved semi-structured interviews with head teachers. Brown and Smith (2023) describe interviews as one of the most effective tools for collecting qualitative data because they provide direct access to participants' experiences, perceptions, and interpretations. Interviews allow respondents to share their perspectives in their own words, offering richer detail than structured survey instruments.

For this study, semi-structured interviews were adopted. Unlike fully structured interviews, which follow a rigid question sequence, semi-structured interviews combine predefined questions with the flexibility to probe further for clarification (O'Leary, 2014). This balance made them suitable for the study because they encouraged participants to speak freely while ensuring that discussions remained aligned with the research objectives. Wragg (2020) supports this method, noting that semi-structured interviews enable interviewers to use follow-up prompts and probes, ensuring deeper exploration of emerging themes.

The interview guide for this study focused on three broad themes: (i) teachers' competencies in using teaching and learning resources, (ii) the types of resources available and applied in lesson delivery, and (iii) the challenges teachers face when using such resources in early childhood classrooms. This approach ensured that the interviews captured both the opportunities and the constraints associated with TLR use in the municipality.

3.7.2 Observation Guide

The second data collection tool was an observation guide. Observation is an established method in educational research, enabling the collection of firsthand data about classroom interactions, teacher behavior, and the use of instructional materials in real-time (Miller, 2021). Unlike interviews, which capture what participants say, observation provides evidence of what actually occurs in natural settings. Cohen (2017) emphasizes that observation eliminates reliance on memory or self-reporting, offering data that reflect ongoing practices rather than past or anticipated actions.

In this study, structured observation was employed. The researcher visited selected kindergartens and observed teachers as they conducted lessons, with a focus on identifying the kinds of TLRs used and the manner in which they were integrated into teaching. The guide contained specific items to ensure systematic data collection, such as the frequency of resource use, the appropriateness of materials, and the level of learner engagement. According to Merriam (2014), observation also serves as a form of triangulation, providing corroboration for data gathered through other means such as interviews and questionnaires. Thus, observations in this study provided critical insights into the practical realities of TLR usage.

3.7.3 Questionnaire

The final instrument was a questionnaire administered to the kindergarten teachers. Creswell and Creswell (2022) describe questionnaires as cost-effective tools that can reach large groups of respondents, ensuring uniformity in the data collected. They are particularly useful for obtaining standardized responses that can be quantified and compared across participants.

The questionnaire used in this study contained closed-ended questions structured on a five-point Likert scale, ranging from “Strongly Disagree” (1) to

“Strongly Agree” (5). This design made it possible to measure teachers’ attitudes, competencies, and challenges systematically. The Likert scale was chosen because it simplifies analysis, enables ranking of items, and increases response reliability, as respondents are more likely to answer all questions when options are clearly defined.

The instrument was divided into four sections. Section A gathered demographic information such as age, sex, academic qualifications, professional rank, teaching experience, and class taught. Section B assessed teachers’ competencies in using TLRs, Section C examined the types of resources employed in classrooms, and Section D explored the challenges associated with TLR usage. The structured nature of the questionnaire ensured that data were directly aligned with the research questions, making the instrument both efficient and relevant.

3.8 Pilot-Testing of Instruments

Before embarking on the main phase of data collection, the researcher carried out a pilot test of the research instruments to ensure their suitability and effectiveness. Pilot testing serves as a trial run of the data collection process, allowing the researcher to identify potential flaws, ambiguities, or difficulties in the instruments before applying them on a larger scale. As highlighted by research methodologists, this step helps in refining both the instruments and the procedures, ensuring that they yield valid and reliable data in the actual study.

The pilot test was conducted with two head teachers and five kindergarten teachers from selected early childhood centres in the Tamale Metropolis. This location was chosen because its demographic and educational characteristics are comparable to those of the Sagnarigu Municipality, where the main study was carried out. Using a comparable site ensured that the findings from the pilot could realistically inform modifications to the instruments.

During the pilot exercise, the researcher carefully explained the instruments to the participants and observed their reactions while responding. The participants also provided valuable feedback on the clarity, wording, and length of the items. Their input revealed areas that required adjustments, such as rephrasing certain questions to avoid ambiguity and restructuring some statements to align more closely with the research objectives. Based on this feedback, revisions were made to improve the precision and user-friendliness of the tools. The pilot test therefore enhanced both the content and the administration process, paving the way for more accurate data collection during the main study.

3.9 Validity and Reliability of Instruments

The quality of any research is heavily dependent on the validity and reliability of its instruments. Validity determines whether the instrument truly measures what it is designed to measure, while reliability relates to the consistency and stability of the measurements across different administrations. Both were rigorously addressed in this study through quantitative and qualitative approaches.

3.9.1 Quantitative (Questionnaire)

For the questionnaire, validity was established through both content validity and face validity. According to Creswell and Creswell (2022), content validity involves ensuring that the items adequately represent the concepts under study, while face validity relates to whether the instrument appears, on the surface, to measure the intended construct. To achieve this, the questionnaire was first submitted to colleagues pursuing a Master of Philosophy in Early Childhood Education at the University of Education, Winneba, who scrutinized it for clarity, logical flow, and appropriateness. Additionally, the draft questionnaire was reviewed by the researcher's supervisor and early childhood coordinators, who acted as subject matter experts. Their professional

input ensured that the items comprehensively covered the research questions and aligned with the objectives of the study.

Reliability was tested through internal consistency using Cronbach's Alpha, a statistical test available in SPSS software (version 26). The analysis yielded an alpha coefficient of 0.89, which is well above the commonly accepted threshold of 0.70. As Smith (2020) notes, reliability coefficients closer to 1.0 reflect stronger internal consistency. Similarly, Jones and Brown (2021) argue that instruments with coefficients above 0.5 can already be considered reliable, though higher values indicate greater precision. Based on these results, the questionnaire was deemed both valid and reliable, justifying its use in the main study.

3.9.2 Qualitative (Interview Guide and Observation Guide)

For the qualitative instruments, validity and reliability were addressed through the criteria of trustworthiness proposed by Lincoln and Guba (1985): credibility, transferability, dependability, and confirmability.

To ensure credibility, the researcher recorded interviews and classroom observations for accurate reference and later employed member checks. After transcription, the transcribed documents and audio recordings were returned to participants to confirm that their views had been accurately captured. This process strengthened the authenticity of the findings.

Transferability was enhanced by providing thick descriptions of the research context, participants, and processes. By documenting detailed accounts of the settings and methods, other researchers can judge the applicability of the findings to similar contexts.

Dependability was maintained by applying consistent procedures throughout the study. The same carefully designed and piloted interview and observation guides were

used across all sessions, ensuring uniformity. Moreover, transcripts were cross-checked by participants for verification.

Finally, confirmability was ensured through triangulation and external auditing. Both the researcher's supervisor and an experienced head teacher served as external auditors, reviewing the instruments and research processes to confirm that the conclusions were supported by the data rather than personal bias. These measures collectively safeguarded the trustworthiness of the qualitative findings.

3.10 Data Collection Procedure

Data collection was carried out in a systematic and ethical manner to ensure accuracy and integrity. The process began with the researcher obtaining an introductory letter from the Department of Early Childhood Education, University of Education, Winneba. This letter was presented to the Sagnarigu Municipal Education Office to secure official approval and a research permit before fieldwork commenced.

The data collection followed three main stages. First, interviews with head teachers were conducted. Each session lasted approximately 30 minutes and was held face-to-face, allowing for deeper engagement and clarification of responses. Although this method was time-intensive, it was highly valuable as it provided the researcher with detailed insights from key stakeholders who oversee early childhood centres.

Second, classroom observations were conducted to capture real-time practices of teachers. The researcher directly observed the types of TLRs available, how they were applied during lessons, and the level of learner engagement. This provided practical, firsthand evidence of TLR usage that complemented the interview and questionnaire data.

Finally, the questionnaires were administered to teachers over a period of three weeks. The researcher visited one school per day, personally distributing the

questionnaires to participants. Before completion, the researcher explained the purpose of the instrument and clarified the response procedure. Each session lasted approximately 55 minutes, during which teachers completed the questionnaires and returned them on the same day. This ensured a high response rate and minimized the risk of incomplete data.

3.11 Data Analysis Procedure

Data analysis is the process of transforming raw data into meaningful insights that answer the research questions. According to Creswell and Creswell (2022), it involves organizing, coding, and interpreting data to uncover patterns, relationships, and conclusions.

For the qualitative data (interviews and observations), the researcher employed a thematic analysis approach. This method involved transcribing the interviews, reading through the transcripts repeatedly, and identifying recurring patterns or themes. These themes were then examined and interpreted in light of the research objectives. The flexibility of thematic analysis allowed the researcher to capture both explicit statements and underlying meanings in participants' accounts, thereby providing a richer understanding of TLR usage in early childhood education.

For the quantitative data (questionnaire responses), SPSS version 26 was used to carry out statistical analysis. Following Bell's (1999) recommendation, the process involved three stages: coding, data entry and cleaning, and analysis. Descriptive statistics such as frequencies, percentages, means, and standard deviations were generated. These measures provided a clear picture of teachers' competencies, the types of TLRs used, and the challenges they encountered. By combining qualitative and quantitative techniques, the analysis provided both depth and breadth, thereby enhancing the robustness of the findings.

3.12 Ethical Considerations

Ethical responsibility was central to the conduct of this research. Informed consent was obtained from all participants before their involvement in the study. Each participant received an information sheet explaining the purpose of the research, their expected role, potential risks, and their right to withdraw at any stage without penalty. Consent forms were signed to indicate voluntary participation.

Confidentiality and anonymity were strictly maintained. To protect participants' identities, pseudonyms were used in transcripts and reports. Consent forms were stored separately from the data to prevent any link between responses and personal information. Hard copies were locked in a secure cabinet, while digital files—including transcripts and audio recordings—were stored on a password-protected server accessible only to the researcher.

The audio recordings were retained for a maximum of one year to allow for verification, after which they were permanently deleted. Participants were made aware of this timeline and assured that their privacy would not be compromised. These ethical measures ensured compliance with professional standards of research while building trust between the researcher and the participants.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION

4.0 Overview

This chapter presents the data analysis, findings, and interpretation of the findings from a study in the Sagnarigu Municipality to investigate kindergarten teachers' use of teaching and learning resources in lesson delivery. Data was collected through the use of distributed questionnaires, observation and interviews from 30 respondents of the Municipality. The data of the study are presented as per research questions of the study in the following sections.

4.1 Demographic Data of the Respondents

This section of the analysis focuses on the demographic data of the respondents which includes gender, age, educational qualification, rank, experience as well as the teaching level of respondents.

Table 4.1: Gender of the Respondents

Gender	Frequency	Percentage
Males	4	20
Females	16	80
Total	20	100

Source: Field data (2024)

As shown in Table 4.1, majority of the respondents 16, (80%), were females while their male counterparts were 4 (20%). This implies that, female teachers dominate the selected schools under the study in the Sagnarigu Municipality. This outcome implies that teaching and learning resources in lesson delivery would attain much success due to female teacher dominance.

Table 4.2: Age of Respondents

Age group (yrs.)	Frequency	Percentage
26-35	12	60
36-45	6	30
46-55	2	10
Total	20	100

Source: Field data (2024)

Data in Table 4.2 show the age profile of respondents. Respondents between 26 years – 35 years were 12 comprising 60% of the total sample. Also, respondents between 36 years – 45 years were 6, comprising 30% of the total sample; while respondents between the age group 46 years – 55 years were 2 (10%). This implies that the perspectives and attitudes reflected in the data are likely influenced by younger professionals who may be more open to innovative teaching methods and technology integration. Younger educators, typically in their early to mid-career stages, may offer a blend of fresh ideas and practical experiences, which can positively influence the overall findings of the study.

Table 4.3 Educational qualification of the respondents

Educational qualification	Frequency	Percentage
Masters	2	10
B. Ed	16	80
Diploma	2	10
Total	20	100

Source: Field data (2024)

The respondents represented various levels of academic attainment as shown in Table 4.3. From the data, 16 (80%) of the respondents indicated they had attained Bachelor's Degree as the highest level of education; 2 (10%) had a Master's degree while 2 (10%) indicated they have attained Diploma in Basic Education. The high percentage of respondents with Bachelor's degrees suggests that most of the educators in the sample

group have a solid foundational education. This level of academic attainment typically provides educators with the necessary theoretical knowledge and practical skills required for effective teaching. Literature supports the idea that a Bachelor's degree in education equips teachers with essential pedagogical skills, subject matter knowledge, and classroom management techniques, which are crucial for fostering student learning and engagement (Darling-Hammond et al., 2017).

Table 4.4. Professional rank of the respondents

Rank	Frequency	Percentage
Assistant Director I	12	60
Assistant Director II	6	30
Principal Superintendent	2	10
Total	20	100

Source: Field data (2024)

Data in **Table 4.4** show that, 12 (60%) of the respondents have the rank of Assistant Director I; 6 (30%) have the rank of Assistant Director II, while 2 (10%) of them are Principal Superintendents.

The data shows that 60% of the respondents have attained the rank of Assistant Director I, suggesting that a majority of the respondents hold senior positions within the educational hierarchy. The Assistant Director I rank typically involves significant administrative responsibilities, leadership roles, and decision-making authority within the school system.

Table 4.5 Classes taught by the respondents

Class taught	Frequency	Percentage
Kindergarten 1	10	50
Kindergarten 2	10	50
Total	20	100

Source: Field data (2024)

From **Table 4.5**, the data show that, 10(50%) of the respondents are teaching in kindergarten one while the other 10(50%) teach in kindergarten 2. This equal distribution has several implications for understanding the teaching environment and instructional practices within these early childhood education settings.

Table 4.6. Teaching Experience of the respondents

Teaching Experience	Frequency	Percentage (%)
0-5	6	30
6-10	11	55
11-15	2	10
16-20	1	5
Total	20	100

Source: Field data (2024)

From Table 4.6, the data indicate that the majority of the respondents comprising eleven (11) teachers (55%) of the respondents indicated they have been in the teaching profession for a period between 6 to 10 years. Six (6) teachers comprising 30% of the respondents indicated they have been teaching for less than 5 years. Two (2) of them representing 10% of the respondents indicated they have been teaching for a period of between 11 to 15 years and only one (1) respondent has been in the service between 16-20 years.

The distribution of teaching experience, as shown in Table 4.6, highlights the need for targeted professional development, mentorship programs, and retention strategies to support teachers at various stages of their careers. By addressing the specific needs of new, mid-career, and highly experienced teachers, schools can create a more effective and dynamic teaching environment, ultimately enhancing student learning outcomes. Understanding and leveraging the diverse experience levels of teachers can lead to a more collaborative and supportive educational community, benefiting both educators and learners alike.

Research Question 1: What competencies do kindergarten teachers have on the use of teaching and learning resources in lesson delivery?

Table 4.7 Key determinants of teachers' competencies

Statement	SA	A	NS	D	SD	Total
Knowledge Of resources	9(45)	6(30)	5(25)	0(00)	0(00)	20(100)
Pedagogical skills	16(80)	4(20)	0(00)	0(00)	0(00)	20(100)
Technology Proficiency	0(00)	0(00)	3(15)	16(80)	1(5)	20(100)
Cultural Responsiveness	0(00)	0(00)	3(15)	16(80)	1(5)	20(100)
Assessment and Feedback	14(70)	6(30)	0(00)	0(00)	0(5)	20(100)

Source: Field data (2024)

From table 4.7, the data show that 9 (45) respondents strongly agree teachers have knowledge of resources. 16 (80) respondents strongly agreed that, teachers possess pedagogical skill that enables them to use TLRs effectively. 16 (80) respondents disagreed that teachers have technological proficiency. Also, 16 (80) respondents disagreed that teachers have cultural responsiveness when using TLRs and finally 14

(70) respondents strongly agreed that teachers have competency in assessment and feedback when using TLRs.

The data indicate that teachers exhibit strong pedagogical skills and assessment and feedback practices, with the majority of the respondents indicating strong agreement or agreement. They also demonstrate good knowledge of resources.

On the other hand, a significant weakness shown in technology proficiency and cultural responsiveness. Most respondents either disagree or strongly disagree with statements related to these competencies.

There is, therefore, the need for teachers to take up professional development in technology proficiency and cultural responsiveness to enhance teacher effectiveness.

Teachers must possess a comprehensive knowledge of available TLRs, including understanding their purpose, types, and how they can be integrated into various instructional strategies. This knowledge enables instructors to select appropriate materials based on curricular goals and the diverse needs of their learners (Smith & Brown, 2021).

Effective teachers demonstrate strong pedagogical skills that allow them to create interactive and engaging learning experiences. They need to know how to adapt resources to different learning styles and cognitive levels, ensuring that all learners benefit from the materials provided (Harris et al., 2020). For instance, using visual aids and manipulatives can cater to both visual and kinaesthetic learners.

In an increasingly digital world, teachers are required to be proficient in utilizing technology-based learning tools. This includes familiarity with educational software, online resources, and multimedia presentations that can enhance lesson delivery. Technological proficiency supports differentiated instruction and helps in the development of digital literacy among learners (Nguyen & Zhao, 2023).

Teachers must develop cultural competencies that allow them to integrate culturally relevant materials into their teaching. Understanding the cultural backgrounds of learners can help educators choose resources that resonate with and engage learners, thereby fostering an inclusive learning environment (Johnson & Martinez, 2021).

Competent teachers are skilled in assessing the effectiveness of TLRs used in their lessons and providing constructive feedback. This involves evaluating whether the chosen materials meet learning objectives and inform future instructional decisions (Rivers & Lee, 2022). Formative assessments can guide teachers in adapting their approaches for continuous improvement.

4.3 Analysis of qualitative data

Regarding the interview responses under the first research question, the emerging theme was noted under which discussions were made on the competencies of the kindergarten teachers on the use of teaching and learning resources in lesson delivery

Theme: Competencies of teachers on Teaching and learning resources (TLRs)

An interviewee said that:

My KG teachers usually use TLRs that relates to their lesson. They carefully select the appropriate TLRs to teach their learners. Generally, I can say their knowledge of resources is good. Sometimes they will tailor their needs to be addressed so the appropriate training would be organized for them in the school. H/TR2

An interviewee also commented that;

My teachers generally ask questions and receive feedback in their lessons. A teacher cannot do effective teaching without asking questions. My observation during some lessons shows that learners get actively involve and are eager to answer questions. Most especially when teachers display learning materials. H/TR 9

An interviewee reported that;

My teachers have less technological proficiency. Most of them are computer illiterates especially the female teachers. All the same this challenge is not left attended to. Workshops and SBI or PLC are organised most of the time. I usually ask about their challenges in the classroom before organizing the SBI to address their needs. We invited the ECE Coordinator and our SISO from the Municipal Education Directorate to facilitate the training on the use of TLRs and how to use technological tools in their lessons. H/TR4

The statements above describe how the teachers ensure that the TLRs they use are directly related to the lesson being taught. This helps connect the learning material to real-world applications and makes it more meaningful for the learners. The teachers also put thought into selecting the most appropriate TLRs for their learners. This indicates that they consider the learners' age, developmental level, interests, and learning styles when making their choices. They have a good understanding of their learners' needs willing to adapt and modify TLRs to better suit the specific needs of their learners. This suggests that they take the time to observe and assess their learners, allowing them to tailor their teaching approaches and resource selection accordingly.

Another statement mentions that teachers frequently use questioning to get their learners attention in class. This shows that the teachers have the requisite skills in questioning and giving feedback. The use of TLRs in lesson involved questioning for better understanding by the learners. When pictures are used in a lesson, teachers need to exhibit their questioning skills effectively.

The third statement indicates that many teachers, especially female teachers, have limited skills in using technology, particularly computer. Despite the challenge, the school is actively working to improve teachers' technological proficiency.

Workshops and professional development sessions are organized regularly to provide training and support. The school also takes a proactive approach to address teachers' specific needs. Before organizing training sessions, feedback is collected from teachers to understand their challenges in the classroom. This ensures that the training is relevant and tailored to their needs.

However, the school also collaborates with external experts to facilitate training. The ECE Coordinator and SISO (School Improvement Support Officer) from the Municipal Education Directorate are invited to conduct training sessions on the use of technology to deliver lessons in the classroom.



4.4 Research Question 2: What type of teaching and learning resources are used by kindergarten teachers in lesson delivery?

Table 4.8. Type of teaching and learning resources

Statement	Always	freq.	S. time	Seldom	Never	Total
Textbook for teachers	6(30)	2(10)	12(60)	0(00)	0(00)	20(100)
Textbook for Learners	12(60)	5(25)	3(15)	0(00)	0(00)	20(100)
Exercise books	20(100)	0(00)	0(00)	0(00)	0(00)	20(100)
Drawing books	8(90)	2(10)	0(00)	0(00)	0(00)	20(100)
Materials for tracing	10(50)	5(25)	5(25)	0(00)	0(00)	20(100)
Reading books	4(20)	4(20)	6(30)	3(15)	3(15)	20(100)
Story books	0(00)	0(00)	10(50)	7(35)	3(15)	20(100)
The big book	0(00)	0(00)	6(30)	4(20)	10(50)	20(100)
The conversational Poster	8(40)	4(20)	1(5)	4(20)	3(15)	20(100)
Flip chart	0(00)	0(00)	0(00)	15(75)	5(25)	20(100)
Flash cards/word cards/Sentence cards	12(60)	4(20)	4(20)	0(00)	0(00)	20(100)
Empty cans and boxes for teaching shapes	15(75)	2(10)	3(15)	0(00)	0(00)	20(00)
Bottle tops, sticks, Counters and or straw for numeracy	18(90)	0(00)	0(00)	1(5)	1(5)	20(100)
Cardboards for other activities	9(45)	3(15)	3(15)	1(5)	4(20)	20(100)
Pictures of scenes on the walls	17(85)	2(10)	1(5)	0(00)	0(00)	20(100)
Drawings of learners on the walls	4(20)	4(20)	2(10)	6(30)	4(20)	20(100)
Learning centres	4(20)	1(5)	2(10)	0(00)	13(65)	20(100)
Sand tray	6(30)	3(15)	5(25)	6(30)	0(00)	20(100)
Manipulatives	3(15)	8(40)	5(25)	2(10)	2(10)	20(100)

Source: Field data (2024)

The data in Table 4.8 show that textbooks for teachers are used infrequently, with 12(60) of respondents sometimes using them and 6(30) using them regularly. This suggests that textbooks for teachers are not a central resource for most of the educators.

On the other hand, textbooks for learners are a vital part of education, with 12(60) of the respondents always using them and 5(25) frequently using them. This indicates that textbooks are an essential resource for learners in the classroom. Exercise books are used by everyone 20(100), highlighting their importance in daily learning activities. Drawing books are also a key resource, with 18(90) of the respondents using them regularly and 2(10) using them frequently, showing their significant role in creative activities. Materials for tracing are used by half of the respondents regularly and a quarter occasionally. This suggests that while these materials are important, they are not used in every teaching situation.

Reading books are used in varied ways; 4(20) of the respondents use them always, 4(20) frequently, and 6(30) sometimes. This indicates inconsistent use among teachers. Storybooks are used infrequently, with 10(50) of the respondents sometimes using them and 7(35) seldomly using them. Only 3(15) never use them, suggesting that storybooks are not a major part of the teaching materials. The Big Book is rarely used, with 10(50) of the respondents never using it and 6(30) sometimes using it. Only 4(20) use it seldom, showing limited use. Conversational posters are used always by 8(40) of the respondents, with 4(20) using them frequently. However, 3(15) never use them, indicating varied use. Flip charts are seldom used, with 15(75) of the respondents rarely using them and 5(25) never using them. This suggests a preference for other teaching tools. Flash cards, word cards, and sentence cards are used frequently, with 12(60) of the respondents always using them and 4(20) using them frequently. This highlights their usefulness in teaching.

Empty cans and boxes for teaching shapes are commonly used by 15(75) of the respondents, showing their importance in teaching geometric concepts. Bottle tops, sticks, counters, and straws for numeracy are used regularly by 18(90) of the

respondents, emphasizing their key role in teaching numeracy skills. Cardboards for other activities are used regularly by 9(45) of the respondents and occasionally by 3(15). This suggests a moderate use of cardboards in various educational activities. Pictures of scenes on the walls are widely used, with 17(85) of the respondents always using them, reflecting their value as visual aids.

Drawings of learners on the walls show mixed use; 4(20) of the respondents use them always, 4(20) frequently, and 6(30) seldom do. This indicates that the use of such drawings varies. Learning centres are rarely used, with 13(65) of the respondents never using them and only 4(20) using them regularly, suggesting they are not a common feature in classrooms. Sand trays are used in various ways; 6(30) of the respondents use them always, 3(15) frequently, 6(30) seldom use them and 5(25) sometimes use them, indicating varied application. Manipulatives are not consistently used, with only 3(15) of the respondents using them regularly, 8(40) frequently, and 5(25) sometimes use them. This suggests that manipulatives are not a regular part of teaching practices.

Regarding the interview responses under the second research question, the emerging theme was noted under which discussions were made on the type of teaching and learning resources are commonly used by kindergarten teachers in lesson delivery.

Theme: Variety of Teaching and learning resources

An interviewee reported that:

My teachers mostly use letter cards, cutout shapes, numeracy cards, bottle tops, counters, puzzles and many more in their lessons. Because these materials are very common to obtain, we have a lot of them in the school. Thus, no Kg teacher can give any excuse when it comes to those materials. H/TR3

Another interviewee reported that:

The Kg teachers use textbooks for themselves and activity books for the learners. They mostly use cut out shapes, counters, conversational charts, posters, the big book, letter cards and empty tins or boxes in their lessons. H/TR7

An interviewee also commented that:

The teachers mostly use TLRs like counters, shapes, colours, puzzles, storybooks, exercise books, and conversational charts. They also have learning centres for the learners to use during that period. I will say we do not have all the materials needed at the learning centres; but the learners really enjoy using the few that we have when it is time to play at the learning centres. H/TR6

The statements above illustrate the extensive use of a variety of Teaching and learning resources (TLRs) by kindergarten teachers in their lessons. These materials, which include letter cards, cut-out shapes, numeracy cards, bottle tops, counters, puzzles, storybooks, and conversational charts, are readily available and commonly used in the schools. Teachers incorporate these TLRs into their lessons to enhance learning and engagement.

One observation from the interview highlighted that common TLRs such as letter cards, cut-out shapes, and numeracy cards are plentiful in the schools, ensuring that no teacher lacks these essential materials for their lessons. This availability removes any excuse for not using TLRs.

Another observation noted that the kindergarten teachers use textbooks and activity books alongside TLRs like cut-out shapes, counters, charts, posters, big books, letter cards, and empty tins or boxes. These materials support a diverse range of learning activities.

A third observation emphasized that TLRs such as counters, shapes, colours, puzzles, storybooks, and conversational charts are integral to the lessons. Additionally, learning centres equipped with these materials provide opportunities for interactive and enjoyable learning, although not all desired materials are available. Despite this, pupils benefit greatly from the existing resources.

Regarding the interview responses under the third research question, the emerging theme was noted under which discussions were made on how kindergarten teachers use teaching and learning resources in lesson delivery.



4.5 Research question 3: How do kindergarten teachers use teaching and learning resources during lesson delivery?

4.5.1 Observation On Teachers' Use Teaching and learning resources In Lesson Delivery

**Table 4.9: Number of Teachers Observed=10
Observational Checklist**

S/N	Themes	Outcome	
		Yes	No
1	Preparation		
	a. The teacher prepared the materials in advance	5	5
	b. The materials are organized and ready for use during the lesson	8	2
2	Introduction		
	a. The teacher introduces the materials clearly and concisely	7	3
	b. The materials are used to support the lesson indicators and outcomes	9	1
3	Use During Lesson		
	a. The teacher uses the materials effectively to support teaching and learning	7	3
	b. The materials are used to engage learners and promote active learning	6	4
4	Student Access		
	a. The materials are accessible to all learners during the lesson	4	6
	b. The teacher ensures equal opportunities for learners to use the materials	4	6
5	Monitoring and Feedback		
	a. The teacher monitors learners' use of materials during the lesson	10	0
	b. The teacher provides feedback and guidance on the use of materials	10	0
6	Conclusion		
	The materials are used to reinforce learners' understanding and learning	10	0
7	Technology Integration		
	The teacher uses technology effectively to support teaching and learning	1	9
8	Inclusivity and Diversity		
	The teacher uses materials that reflect the diversity of the learners	5	5
9	Creativity and Innovation		
	a. The teacher uses materials in creative and innovative ways to engage learners	8	2
	b. Learners are encouraged to use materials to express their creativity and thinking	9	1

The researcher observed several important aspects regarding the use of materials in lessons. In the first instance, the researcher found that only half of the teachers prepared the materials in advance. This indicates a need for better preparation practices among teachers. Despite this, eight out of the ten teachers had the materials organized and ready for use during the lesson. This shows that once the materials are prepared, teachers are good at organizing them effectively for the lesson (Jones & Smith, 2021).

When introducing materials, teachers generally did well. In seven out of ten instances, the teachers introduced the materials clearly and concisely. Additionally, in nine out of ten cases, materials were used effectively to support lesson indicators and outcomes. This demonstrates that teachers are proficient at integrating materials into their lesson plans to enhance understanding and achieve lesson goals.

During the lesson, materials were used effectively to support teaching and learning in seven out of ten cases. However, materials were used to engage learners and promote active learning in only six out of ten instances. This suggests that while the teachers are using materials to teach, there is room for improvement in making these materials more engaging to foster active learning among learners (Brown, 2019).

Regarding student access to materials, only four out of ten teachers made the materials accessible to learners during the lesson. Similarly, equal opportunities for material use were ensured in only four out of ten cases. These figures highlight significant room for improvement in ensuring that all learners have access to the materials they need during lessons. Ensuring equal access can enhance student participation and learning outcomes (Smith & Doe, 2020).

Monitoring and feedback were areas of strength. Teachers monitored learners' use of materials and provided feedback in all observed cases. This indicates a strong practice of oversight and guidance, which is crucial for effective learning. Regular monitoring and feedback help ensure that learners are using materials correctly and benefiting from them (Johnson, 2018).

In concluding lessons, materials were used to reinforce learners' understanding and learning in every case. This demonstrates effective use of materials in wrapping up lessons and ensuring learners grasp the essential points (Williams, 2020). Technology

integration, however, was notably weak. Only one out of the ten teachers effectively used technology to support teaching and learning. This indicates a significant gap in the integration of technology into teaching practices, suggesting that teachers may need more training and resources in this area (Taylor, 2021).

Inclusivity and diversity in material use showed moderate success. Materials reflected the diversity of learners in five out of ten instances. While there is an effort to use inclusive materials, there is room for improvement to ensure all materials fully represent and respect diverse backgrounds and abilities (Adams & Lee, 2019).

Lastly, creativity and innovation in material use were strong points. The teachers used materials in creative and innovative ways to engage learners in eight out of ten cases. Furthermore, learners were encouraged to use materials to express their creativity and thinking in nine out of ten instances. This highlights that teachers are generally good at using materials to inspire creativity and critical thinking among learners (Miller, 2019).

Theme: Consistent use of Teaching and Learning Material

An interviewee reported that:

From my observation, my Kg teachers use TLRs throughout their lessons. The Kg lessons are integrated so every indicator is taught using the necessary TLRs. They do the introduction with TLRs and end with TLRs. So, I will say they mostly use TLRs. H/TR 1

An Interviewee reported that:

Sometimes the Kg teachers may want to use some TLRs but find it difficult to get them in sufficient quantities for the whole class. So, they mostly use the TLRs during group activities, so that majority of the learners can have access to them. They also consider

the needs of the learners before using the TLRs in their lessons. H/TR 5

Another interviewee also reported that:

My Kg teachers mostly use songs/rhymes to introduce their lessons. Songs/rhymes are usually aligned with the indicators. The circle time, group activities and the conclusion are all taught using TLRs. I have also observed that the KG teachers make sure all the learners have access to the TLRs. The teachers go around to guide the learning during group activities. H/TR. 10

The statements above emphasize the consistent and strategic use of teaching and learning resources (TLRs) by the kindergarten teachers in their lessons. The teachers integrate TLRs throughout their lessons, from introductions to conclusions, ensuring that each indicator in the integrated curriculum is supported by appropriate materials.

One observation noted that the teachers consistently use TLRs in every part of their lessons, highlighting their importance in engaging learners and reinforcing learning. However, there are challenges in obtaining sufficient quantities of TLRs for all learners, leading teachers to primarily use them during group activities to maximize accessibility for the majority of learners. Teachers also consider the specific needs of their learners when choosing TLRs, ensuring that the materials used are beneficial for their learning.

Another observation from the interview pointed out that the kindergarten teachers often use songs and rhymes to introduce their lessons, aligning these musical elements with the lesson indicators. During circle time, group activities, and lesson conclusions, TLRs are consistently used. The teachers ensure that all learners have access to TLRs

and actively guide learning during group activities, fostering an interactive and supportive learning environment.

From the classroom observations conducted, it was apparent that a number of teachers made efforts to incorporate instructional resources into their lesson delivery. These resources, although modest, provided a certain degree of appropriateness for the learners and contributed to making lessons more interactive and engaging. The use of such materials gave a practical and hands-on orientation to the teaching process, which in turn allowed learners to become active participants rather than passive recipients of knowledge. This participatory approach is crucial at the kindergarten level, where learning is most effective when it is concrete, experiential, and activity-based.

Among the teaching and learning resources observed, the most commonly used were simple, locally available materials such as bottle tops, small pebbles, and shells. These items served primarily as counting aids, enabling children to physically manipulate objects while learning basic numeracy concepts. In addition to these, some teachers made use of objects and empty cans of varying sizes and shapes, which were effective in teaching concepts such as classification, measurement, and comparison. Picture cards were also employed in some lessons, particularly to support language development, storytelling, and vocabulary building. Such resources are beneficial because they provide visual support to abstract ideas, thereby aiding comprehension among young learners.

Despite these positive practices, it was observed that the instructional resources available were severely inadequate when measured against the large class sizes. In most cases, there were simply not enough materials to go around. For instance, when children were grouped, many of them had to crowd around a limited number of resources, which made it difficult for all pupils to actively engage in the activity. This situation not only

limited individual learner participation but also resulted in some children losing concentration, becoming inattentive, or disengaging altogether. Such disengagement often translated into difficulties in maintaining class control, as idle learners created distractions for others.

Another notable challenge was the lack of variety in the resources employed. Teachers tended to rely on the same limited set of materials repeatedly, which reduced the level of stimulation and novelty in lessons. Young children generally thrive on variety, creativity, and exploration; hence, a narrow range of instructional tools may not fully cater to their developmental needs or sustain their interest in learning activities.

In contrast, a small number of teachers relied exclusively on chalkboard illustrations and a few posters as their primary instructional aids. While these tools have their place in classroom teaching, their use in isolation limited the interactive dimension of the lesson. In such cases, pupils' involvement was minimal, as their participation was reduced to echoing or repeating words and sentences after the teacher, rather than actively exploring or manipulating resources. This teacher-centered approach created a passive learning environment, which does not align with best practices in early childhood education that emphasize active learning, discovery, and learner engagement.

Research Question 4: What type of challenges do kindergarten teachers encounter when it comes to utilizing teaching and learning resources in lesson delivery?

Table 4.10 Challenges kindergarten teachers encounter

Statement	SA	A	NS	D	SD	Total
Overcrowded classroom/ large classroom size	9(45)	5(25)	1(5)	2(10)	3(15)	20(100)
Inappropriate furniture (especially when using TLRs in group activities)	19(95)	1(5)	0(00)	0(00)	0(00)	20(100)
Power disruptions when using electrical TLRs during lessons	7(35)	8(40)	4(20)	1(5)	0(00)	20(100)
Technical issues when using technology-based TLRs	2(10)	10(50)	8(40)	0(00)	0(00)	20(100)
Differentiation (adapting TLRs to cater for the needs of the diverse learning styles during lessons)	11(55)	2(10)	5(25)	1(5)	1(5)	20(100)
Open class environment (learning under trees)	17(75)	2(10)	1(5)	0(00)	0(00)	20(100)
Time management (balancing the use of TLRs within the limited time frame during learning centres).	10(50)	2(10)	0(00)	4(20)	4(20)	20(100)
Maintenance and upkeep (some TLRs require special handling during lessons)	8(40)	10(50)	1(5)	1(5)	0(00)	20(100)

Source: Field data (2024)

The data analysis reveals several key challenges faced by educators related to the use of teaching and learning resources (TLRs) and classroom environments.

Overcrowded Classroom/Large Classroom Size: A significant number of the respondents 9(45) strongly agreed that overcrowded or large classrooms are a major

issue, with 5(25) agreeing with this statement. Only a small proportion, 2(10), disagreed and 3(15) strongly disagreed. This suggests that a majority of the teachers find large or overcrowded classrooms problematic, likely affecting their ability to effectively use TLRs and manage classroom activities.

Inappropriate Furniture: Nearly all the respondents, 19(95), strongly agreed that inappropriate furniture is a significant problem, especially, when using TLRs in group activities. This indicates a strong consensus that inadequate or unsuitable furniture hampers the effective use of TLRs and group work in the classroom. No respondent disagreed to this statement, highlighting the critical nature of this issue.

Power Disruptions: Power disruptions are a concern for 7(35) of the respondents who strongly agreed and 8(40) who agreed that these disruptions affect the use of electrical TLRs during lessons. A smaller percentage 4(20) were neutral, and 1(5) disagreed. This shows that power reliability is a significant issue for many teachers, affecting their ability to use technology-dependent TLRs consistently.

Technical Issues with Technology-Based TLRs: Technical issues were reported by 2(10) of the respondents who strongly agreed and 10(50) who agree as a problem when using technology-based TLRs. A notable portion 8(40) were neutral about this issue. This indicates that while many educators experience technical difficulties, there is also a significant group who may not encounter these problems or find them less impactful.

Differentiation: The challenge of adapting TLRs to cater to diverse learning styles is recognized by 11(55) of the respondents who strongly agreed and 2(10) who agreed. Meanwhile, 5(25) were neutral and only 2(10) disagreed. This shows that adapting TLRs to meet various learning needs is a prominent issue, with most of the educators acknowledging the importance of differentiation in their teaching practices.

Open Class Environment: An open class environment, such as learning under trees, is strongly supported by 15(75) of the respondents, with 2(10) agreeing. Only 1(5) was neutral. No respondents disagreed. This suggests that many educators favour or are comfortable with open class environments, which might be seen as beneficial or practical in their contexts.

Time Management: Time management related to balancing the use of TLRs within a limited time frame is an issue for 10(50) of the respondents who strongly agreed and 2(10) who agreed. However, 4(20) disagreed and another 4(20) strongly disagreed. This indicates that while many teachers find time management challenging, a considerable portion either does not find it problematic or has different experiences.

Maintenance and Upkeep: Maintenance and upkeep of TLRs, which require special handling during lessons, is a concern for 8(40) of the respondents who strongly agreed and 10(50) who agreed. Only 1(5) was neutral and 1(5) disagreed. This highlights that maintaining TLRs is seen as a significant issue by most educators, likely impacting their effective use in teaching.

The data indicate that overcrowded or large classroom sizes are a significant concern for many educators. Research supports this finding, showing that overcrowded classrooms negatively affect teaching quality and student learning outcomes. According to Blatchford et al. (2003), large class sizes are associated with decreased individual attention for learners and increased teacher stress, which can hinder effective teaching. Similarly, Akiba et al. (2007) found that smaller class sizes generally lead to improved student performance and better teacher satisfaction. The challenges faced by educators in overcrowded classrooms highlight the need for strategies to manage class sizes effectively to enhance educational outcomes.

Inappropriate Furniture: The overwhelming agreement among the respondents regarding inappropriate furniture,

especially when using TLRs in group activities, is consistent with literature emphasizing the importance of suitable classroom furniture. Barrett et al. (2015) found that the physical environment, including furniture, significantly impacts student engagement and learning. Inappropriate furniture can limit the effective use of teaching materials and hinder group interactions, suggesting that investments in proper classroom furnishings are essential for effective teaching.

Maintenance and Upkeep of TLRs: The data reveals that maintenance and upkeep of TLRs are major concerns, with many educators reporting difficulties. This aligns with findings by MacGregor and Lou (2004), who noted that the proper maintenance of educational resources is crucial for their effective use. Poorly maintained TLRs can disrupt teaching and reduce their educational value. Ensuring that TLRs are well-maintained and appropriately handled during lessons is critical for maximizing their effectiveness.

Power Disruptions and Technical Issues: Power disruptions and technical issues with technology-based TLRs are notable concerns for educators. Research by Ertmer et al. (2012) highlighted that technology integration in education often faces challenges, including technical difficulties and reliability issues. Power outages and technical problems can disrupt lessons and impact the use of digital resources, emphasizing the need for reliable technological infrastructure and support.

Differentiation: The data indicates that differentiating TLRs to cater to diverse learning styles is a significant challenge. Literature supports the importance of differentiation in education. Tomlinson (2001) emphasized that effective differentiation involves adapting teaching methods and materials to meet the varying needs of learners, which can enhance learning outcomes. The need for differentiation underscores the importance of providing diverse TLRs to address different learning styles and abilities.

Open Class Environments: The positive view of open class environments, such as learning under trees, suggests that some educators see benefits in unconventional settings. Research by Higgins et al. (2005) indicated that flexible learning environments can positively impact student learning and engagement. Open environments may provide a more stimulating and adaptable space for learning, potentially benefiting both teachers and learners.

Time Management: The data show mixed opinions on time management concerning the use of TLRs. Effective time management is crucial for integrating TLRs into lessons without disrupting the learning process. According to Smith and Ragan (2005), managing instructional time effectively helps ensure that educational activities are conducted smoothly and that learning objectives are met. The varying experiences reported by educators suggest that time management strategies need to be tailored to individual classroom contexts.

Regarding the interview responses under the fourth research question, the emerging theme was noted under which discussions were made on the type of challenges do kindergarten teachers encounter when it comes to utilizing teaching and learning resources in lesson delivery.

Theme: Inadequate infrastructure and resources

An interviewee stated that:

As it obviously shows, the classrooms are crowded. We have enough furniture but the classrooms are not enough to accommodate the learners. We cannot also limit the intake of the children because we have been asked to admit every child of school going age. This makes the teachers find it difficult to group them and move around freely during lesson delivery. H/TR2

Another interviewee also mentioned that:

My KG teachers complain about the difficulties they have when they want to put the learners into groups because of the type of furniture we have in the classrooms. They find it very difficult putting the children into groups to share TLRs. This has made some of the teachers to abandon the use of TLRs in their lessons. H/TR5

One of the interviewees reported that:

Since the implementation of the new curriculum my KG teachers have been complaining about the time they have for various activities. They find it very difficult using all the necessary TLRs in some of the activities due to the limited time they have per activity. They also have challenges with furniture for the learners. They sit on the floor to learn. The good thing is that we have mats that are spread on the floor for them to sit and learn. H/TR 7

Similarly, an interviewee commented that:

As you can see, we do not have enough classrooms so the KG 2 learners are sitting under that big tree for their lessons. As a teacher, using TLRs in that environment is very difficult. The teachers also try their best to use TLRs; but not all of them, for example, they cannot use their learning centres under the trees. Another challenge we face here is the absence of electricity. We do not have electrical power here to operate some of the devices that can be used to teach. We were given a television set; but we cannot use it because of this challenge. H/TR10

These statements highlight the challenges faced by early childhood education settings due to inadequate infrastructure and resources. Overcrowded classrooms make it difficult for teachers to organize learners and move freely, despite having enough furniture, as every child of school-going age must be admitted. This results in teachers struggling to deliver effective lessons (Ehrenberg et al., 2001). Additionally, inappropriate classroom furniture complicates group activities and the use of Teaching

and learning resources (TLRs), leading some teachers to abandon TLRs altogether (Woolfolk, 2013).

The implementation of a new curriculum has further strained the teachers, who struggle to fit all activities within the limited time allocated. This issue is compounded by inadequate furniture, forcing learners to sit on mats on the floor (Fullan, 2007; Cleveland & Fisher, 2014). The lack of sufficient classrooms has led to some learners learning under trees, making the use of TLRs and learning centres impractical. The absence of electricity exacerbates the situation, preventing the use of electronic teaching tools such as televisions, thereby limiting the quality of education provided (UNESCO, 2015; Khan, 2012).



CHAPTER FIVE

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

5.0 Overview

The purpose of this final chapter was to review the research process in relation to the research objectives and questions, in order to present a summary of the research, conclusions, and recommendations. The study was on Kindergarten Teachers use of teaching and learning resources in lesson delivery in the Sagnarigu Municipality. It involved 20 Kindergarten teachers and 10 head teachers from 10 schools using random sampling and purposive sampling techniques. The instruments used for data collection were interview guide, observational guide and questionnaire. Data was analysed using thematic approach and SPSS software version 26.0.

5.1 Key Findings

What competencies do kindergarten teachers have on the use of teaching and learning resources in lesson delivery in the Sagnarigu Municipality?

The research indicates that kindergarten teachers have competencies on the use of teaching and learning resources (TLRs). These competencies include knowledge of resources, pedagogical skills, technology proficiency, cultural responsiveness, and assessment and feedback.

What Types of Teaching and learning resources are used by kindergarten teachers in lesson delivery in the Sagnarigu Municipality?

Kindergarten teachers use a variety of TLRs, including textbooks for teachers and learners, exercise books, drawing books, materials for tracing, reading books, storybooks, big books, conversational posters, flip charts, flashcards, empty cans and boxes for teaching shapes, bottle tops, sticks, counters, and straws for numeracy, cardboards for other activities, pictures of scenes on the walls, drawings of learners on the walls, learning

centres, sand trays, and manipulatives. The data reveals that exercise books, drawing books, empty cans and boxes, bottle tops, sticks, and pictures of scenes on the walls are particularly prevalent, with high usage rates among respondents.

How Do Kindergarten Teachers Use Teaching and learning resources During Lesson Delivery in the Sagnarigu Municipality?

Kindergarten teachers utilize TLRs in various interactive and engaging ways to enhance learning. For instance, flashcards and word cards are used for vocabulary building and sentence construction activities. Drawing books and materials for tracing are incorporated into art and fine motor skill development exercises. Exercise books are used for daily practice and assessments. Teachers also use manipulatives like bottle tops, sticks, and counters to teach numeracy concepts, making abstract ideas more concrete for young learners. Additionally, pictures of scenes and drawings on the walls are employed to create a stimulating and visually rich learning environment that supports thematic and experiential learning.

What Types of Challenges Do Kindergarten Teachers Encounter When It Comes to Utilizing Teaching and learning resources in Lesson Delivery in the Sagnarigu Municipality?

Kindergarten teachers face several challenges in utilizing TLRs effectively. These challenges include overcrowded classrooms, inappropriate furniture, and difficulties with the maintenance and upkeep of TLRs. Power disruptions and technical issues with technology-based TLRs further hinder teaching effectiveness. Additionally, differentiation, which involves adapting TLRs to cater to diverse learning styles, remains a critical challenge. Despite some positive views on the benefits of open class environments, time management in balancing the use of TLRs within limited instructional periods poses a significant challenge.

5.2 Conclusions

The research concludes that kindergarten teachers are perceived to have strong pedagogical skills and knowledge of resources. However, there are significant concerns regarding their proficiency in technology and cultural responsiveness. These areas require attention to ensure that teachers are well-equipped to meet the needs of their learners in the 21st century. There is the need to introduce more training options to provide comprehensive and flexible professional development opportunities, catering to the diverse needs and schedules of teachers.

The study concludes that kindergarten teachers utilize a wide variety of TLRs to facilitate effective lesson delivery. These materials include textbooks, exercise books, drawing books, tracing materials, reading books, storybooks, big books, conversational posters, flip charts, flashcards, empty cans and boxes for shapes, bottle tops and counters for numeracy, cardboards, pictures of scenes, and learners' drawings. This diverse array of materials indicates a robust and multifaceted approach to early childhood education, aimed at engaging young learners through multiple sensory experiences.

The research concludes that kindergarten teachers effectively integrate TLRs into their lesson plans to enhance student engagement and learning. Teachers employ these materials to support various instructional strategies, including group activities, hands-on learning, and visual aids. Additionally, they adapt TLRs to meet the diverse learning needs of their learners, employing differentiated instruction techniques. This approach ensures that all learners benefit from the materials, fostering a stimulating and interactive classroom environment.

The study concludes that kindergarten teachers encounter several significant challenges when using TLRs. Overcrowded classrooms and inappropriate furniture impede the effective use of materials, particularly during group activities. Technical

issues, such as power disruptions and problems with technology-based TLRs, further hinder teaching effectiveness. Teachers also face difficulties with the maintenance and upkeep of certain materials, which require special handling. Time management remains a challenge, as teachers struggle to balance the use of TLRs within limited instructional time. Addressing these challenges is crucial for enhancing the effectiveness and efficiency of teaching practices in early childhood education.

5.3 Recommendations

The following recommendations were made by the researcher,

1. The Sagnarigu Municipal Education Directorate should organize seminars, workshops and any other in-service courses to continually upgrade teachers with requisite skills and competencies. This could trigger teachers' creativity and innovation in the use of instructional technologies in lesson delivery.
2. Teachers should be encouraged by their head teachers to use a diverse array of TLRs, including physical materials like flashcards and drawing books, as well as digital resources. Utilizing a variety of materials can cater to different learning styles and improve student engagement and understanding
3. The Early Childhood Education Coordinator from Sagnarigu Municipal should encourage teachers to use TLRs in ways that actively engage learners in the learning process. This can include interactive activities, group work, and hands-on exercises that make learning more dynamic and participatory
4. Schools should conduct regular assessments to identify common challenges teachers face in using TLRs, such as lack of resources, insufficient training, or

technical issues. Addressing these barriers through targeted interventions can improve the effectiveness of TLR use.

5.4 Suggestions for further study

Other researchers should consider conducting a larger scale study involving multiple early childhood centers across various regions or districts to compare and contrast the kindergarten teachers; use of teaching and learning resources in lesson delivery.

Other researchers should undertake a longitudinal research to track changes in kindergarten teachers use of teaching and learning resources in lesson delivery over an extended period of time. Future studies should consider using different research approach and design to provide a more understanding of the kindergarten teachers' use of teaching and learning resources in lesson delivery.



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APPENDICES

APPENDIX A:

	UNIVERSITY OF EDUCATION, WINNEBA FACULTY OF APPLIED BEHAVIOURAL SCIENCES IN EDUCATION DEPARTMENT OF EARLY CHILDHOOD CARE AND DEVELOPMENT P.O. Box 22, Winneba, Ghana
FABSE/DECE/L1	
24 TH JUNE, 2024	
The Municipal Director Ghana Education Service P.O. Box 337 Sagnarigu Temale	
Dear Sir/ Madam,	
INTRODUCTORY LETTER	
I kindly write to introduce to you Ms. Rebecca Sulley with index number:8231900016 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: <i>"Kindergarten Teachers Use of Teaching and Learning Materials in Lesson Delivery in Sagnarigu Municipality"</i> .	
Ms. Rebecca Sulley 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	
	www.uew.edu.gh

APPENDIX B:



**GHANA
EDUCATION**
SAGNARIGU MUNICIPAL EDUCATION
DIRECTORATE

Post Office Box 337 E/R,
Sagnarigu
GPS: NS-009-7757
Email: sagnarigumunicipal.educ@ees.gov.gh

*In case of reply the number and date
of this letter should be quoted*

Ref. No: GES/NR/SMEO/

Your Ref No.:

Date: 25th June, 2024.

PERMISSION TO COLLECT DATA

Following your request to collect data from the Kindergarten Schools, teachers and Headteachers in the Directorate, I wish to inform you that permission have been granted you to proceed with the data collection to enable complete your research work.

The office would be much grateful if you could furnish us with the findings of your research work.

I wish you a fruitful data collection exercise.

Thank you.

MS. REBECCA SULLEY
SAGNARIGU MUNIC. EDUC. OFFICE
SAGNARIGU

ALHASSAN ALIDU JNR. (MR.)
MUNICIPAL EDUCATION DIRECTOR
SAGNARIGU

bbr



APPENDIX C: QUESTIONNAIRE

SECTION A
BACKGROUND INFORMATION OF RESPONDENTS

Kindly tick (✓) where appropriate

1. Sex (select as appropriate)

Male	
Female	

2. Age Range (select as appropriate)

Age Range/Years	26 – 35	36 – 45	46 – 55	56 years and above
Select				

3. Academic Qualification (select as appropriate)

Academic Qualification	Master Degree	First Degree	DBE	HND
Select				

4. What is your rank in your teaching profession? (select as appropriate)

Rank	Deputy Director	Assistant Director I	Assistant Director II	Principal Superintendent	Senior Superintendent 1
Select					

5. What class do you

Present class	Kindergarten 1	Kindergarten 2
Select		

6. How many years have you been teaching at the kindergarten level? (select as appropriate)

Duration Served	Less than 5 years	6 – 10 years	11 – 15 years	16 – 20 years	More than 21 years
Select					

7. Professional Qualification (select as appropriate)

Professional Qualification	Graduate professional	Graduate non-professional	Diploma professional	Diploma non-professional
Select				

SECTION B**PROFESSIONAL DEVELOPMENT TRAININGS FOR
KINDERGARTEN TEACHERS IN THE SAGNARIGU
MUNICIPALITY.**

In this section, you are required to give your ratings on the types of trainings for kindergarten teachers on the use of teaching and learning materials.

The scale given in Table 1 indicates the weighting assigned to the responses.

Table 1

5	4	3	2	1
Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree

For each of the statement in Table 2, tick (✓) as appropriate to indicate the degree to which you rate the trainings on use of teaching and learning materials for kindergarten teachers.

Table 2**Research Question 1**

What competencies do kindergarten teachers have on the use of teaching and learning resources in lesson delivery?

#	Statement	5	4	3	2	1
1	Knowledge of resources					
2	Pedagogical skills					
3	Technology Proficiency					
4	Cultural responsiveness					
5	Assessment and feedback					

SECTION C**TYPE OF TEACHING AND LEARNING MATERIALS
KINDERGARTEN TEACHERS USE IN LESSON DELIVERY IN THE
SAGNARIGU MUNICIPALITY.**

In this section, you are required to give your ratings on the type of teaching and learning materials kindergarten teachers use in lesson delivery.

The scale given in Table 3 indicates the weighting assigned to the responses. Teaching and learning materials kindergarten teachers often use in lesson delivery.

Table 3

5	4	3	2	1
Always	Frequently	Sometimes	Seldom	Never

For each of the statement in Table 4, tick (✓) as appropriate to indicate the degree to which you rate the type of teaching and learning materials kindergarten teachers often use in lesson delivery.

Table 4**Research Question 2**

What type of teaching and learning materials are commonly used by kindergarten teachers in lesson delivery?

#	Statement	5	4	3	2	1
1	Textbooks for teachers					
2	Textbooks for learners					
3	Exercise books					
4	Drawing books					
5	Materials for tracing					
6	Reading books					
7	Story books					
8	The big book					
9	The conversational poster					
10	Flip chart					
11	Flash cards/word cards/sentence cards					
12	Empty cans and boxes for teaching shapes					
13	Bottle tops, sticks, counters and or straw for numeracy					
14	Cardboards for other activities					
15	Pictures of scenes on the walls					
16	Drawings of learners on the walls					
17	Learning centres					
18	Sand tray					
19	Manipulatives					

SECTION D**CHALLENGES TEACHERS FACE WHEN USING TEACHING AND LEARNING MATERIALS IN LESSON DELIVERY IN THE SAGNARIGU MUNICIPALITY**

In this section, you are required to give your ratings on the challenges teachers face in accessing and utilizing teaching and learning materials in lesson delivery. The scale given in Table 7 indicates the weighting assigned to the responses.

Table 5

5	4	3	2	1
Strongly Agree	Agree	Not sure	Disagree	Strongly Disagree

For each of the statements in Table 8, tick (✓) as appropriate to indicate the degree to which you rate the challenges teachers face in accessing and utilizing teaching and learning materials in lesson delivery.

Table 6**Research Question 4**

What type of challenges do kindergarten teachers encounter when it comes to utilizing teaching and learning materials in lesson delivery?

#	Statement	5	4	3	2	1
1	Overcrowded classroom/large classroom size					
2	Inappropriate furniture (especially when using TLMs in group activities)					
3	Power disruptions when using electrical TLMs during lessons					
4	Technical issues when using technology-based TLMs					
5	Differentiation (adapting TLMs to cater for the needs of the diverse learning styles during lessons)					
6	Open class environment (learning under trees)					
7	Time management (balancing the use of TLMs within the limited time frame during learning centers).					
8	Maintenance and upkeep (some TLMs require special handling during lessons)					

APPENDIX D: INTERVIEW GUIDE

UNIVERSITY OF EDUCATION WINNEBA

DEPARTMENT OF EARLY CHILDHOOD EDUCATION

INTERVIEW GUIDE FOR KINDERGARTEN HEADTEACHERS

Research Question 1 (What type of trainings are available for kindergarten teachers on the use of teaching and learning materials in lesson delivery?)

1. What knowledge do kindergarten teachers have on TLMs usage? (please provide some examples)
2. How does the knowledge of TLR help your kindergarten teachers in selecting teaching and learning resources in their lesson delivery?
3. What pedagogical skills do your teachers have in using teaching and learning resources?
4. From your observation, do your kindergarten teachers have knowledge in using technological resources in their lesson delivery?
5. Do your teachers consider the cultural diversity of their learners when using teaching and learning resources?
6. How do your kindergarten teachers use assessment and feedback skills during lesson delivery?
7. Can you share any feedback or success stories from kindergarten teachers who have participated in training programs to help them acquire skills in boosting their competency level?
8. In your opinion, what are the key benefits of providing kindergarten teachers trainings to boost their competencies?

Research Question 2 (What type of teaching and learning materials are commonly used by kindergarten teachers in lesson delivery?)

Section 1: General teaching and learning materials use in lesson delivery.

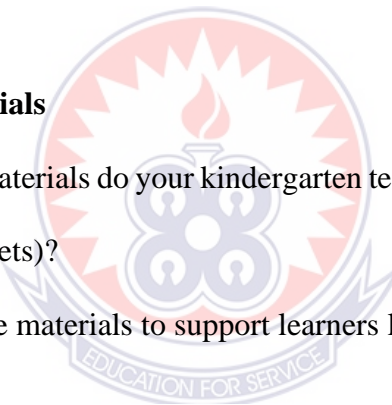
1. What type of TLMs do you have in your school for the kindergarten teachers to use in lesson delivery?
2. What types of materials do your kindergarten teachers typically use in teaching (e.g., textbooks, digital resources, and manipulatives)?
3. How do your teachers select the materials they use in lessons (e.g., curriculum requirements, learners needs, and personal preference)?
4. What factors influence your choice of materials (e.g., availability, cost, relevance to learning objectives)?

Section 2: Print Materials

5. What types of print materials do your kindergarten teachers use most frequently (e.g., activity books, worksheets)?
6. How do you use these materials to support learners learning (e.g., homework, group work)?
7. Do you create your own print materials or rely on published resources? How?

Section 3: Digital Materials

8. What types of digital materials do your teachers use in teaching (e.g., online resources, educational software, multimedia)?
9. How do your teachers integrate digital materials into their lessons (e.g., online research, digital projects, multimedia presentations)?
10. Do you use any digital tools or platforms to support learners' collaboration or feedback (e.g., online discussion boards, peer review tools)? Why?



Section 4: Manipulatives and Hands-on Materials

11. What types of manipulatives or hands-on materials do your kindergarten teachers use in their teaching (e.g., math manipulatives, science equipment, art supplies)?

12. How do they use these materials to support learners learning and engagement (e.g., hands-on activities, experiments, projects)?

13. Do they have any favorite manipulatives or hands-on materials that they find particularly effective? Why?

Section 5: Online Resources and Websites

14. What online resources or websites do they use most frequently in their teaching (e.g., educational websites, online textbooks, resource databases)?

15. How do you evaluate the quality and reliability of online resources (e.g., credibility, accuracy, relevance)?

16. Do you use any online resources to support learners' research or project-based learning (e.g., online databases, research tools)?

Section 6: Teacher-Created Materials

17. Do your teachers create their own teaching materials, such as lesson plans or assessments?

18. What types of materials do you support them to create most frequently (e.g., worksheets, presentations, multimedia resources)?

19. How do they share teacher-created materials with colleagues or learners (e.g., shared drives, online platforms)?

Research Question 3 (How do kindergarten teachers use teaching and learning materials in lesson delivery?)

1. In your opinion, what is the process of integrating teaching and learning materials into lesson delivery?

2. How do you ensure that the teaching and learning materials your kindergarten teachers use are aligned with indicators of the strands?
3. Can you provide examples of how your kindergarten teachers adapt or modify teaching and learning materials to meet the diverse needs of learners?
4. What strategies do they use to effectively manage teaching and learning materials for lessons?
5. How do they assess learners understanding and learning using the teaching and learning materials use in lessons?

Research Question 4 (What type of challenges do kindergarten teachers encounter when It comes to utilizing teaching and learning materials in lesson delivery?)

1. In your opinion, what are some of the problems your teachers face when using teaching and learning materials during lessons? Please provide examples of such problems.
2. How do they navigate any constraints or limitations when using teaching and learning materials in the classroom?
3. How do they address any difficulties in aligning teaching and learning materials with the diverse learning needs and abilities of learners?
4. Can you share instances where external factors or school resources have posed challenges in utilizing teaching and learning materials effectively in lesson delivery?
5. Have they encountered any challenges in utilizing technology or multimedia resources as part of teaching and learning materials during lesson delivery, and how were they able to manage these challenges?
6. What do you think are the biggest challenges your teachers face when integrating technology into teaching?

7. How do your teachers currently use technology in the classroom, and what obstacles do you think they encounter?

8. What additional resources or support do you think would help your kindergarten teachers overcome the challenges face when using technology in teaching?

Follow-up questions:

- Can you elaborate on that?

- How did you overcome that challenge?

- What do you think would help alleviate that issue?

- Have you noticed any impact on learners learning or engagement due to technology integration?



APPENDIX E: OBSERVATIONAL CHECKLIST

QUESTION 3: HOW DO KINDERGARTEN TEACHERS USE TEACHING AND LEARNING MATERIALS DURING LESSON DELIVERY:

Teacher's Name: _____

Subject/Grade: _____

Date: _____

Teaching and Learning Materials:

1. Availability:

- There are necessary materials available for the lesson YES/NO
- The materials are in good condition and easily accessible YES/NO

2. Preparation:

- The teacher prepared the materials in advance YES/NO
- The materials are organized and ready for use during the lesson YES/NO

3. Introduction:

- The teacher introduces the materials clearly and concisely YES/NO
- The materials are used to support the lesson indicators and outcomes YES/NO

4. Use During Lesson:

- The teacher uses the materials effectively to support teaching and learning YES/NO
- The materials are used to engage learners and promote active learning YES/NO
- The materials are used to differentiate instruction and meet the needs of diverse learners YES/NO

5. Student Access:

- The materials are accessible to all learners during the lesson YES/NO
- The teacher ensures equal opportunities for learners to use the materials YES/NO

6. Monitoring and Feedback:

- The teacher monitors learners use of materials during the lesson YES/NO
- The teacher provides feedback and guidance on the use of materials YES/NO

7. Conclusion:

- The teacher summarizes the key points and outcomes of the lesson YES/NO
- The materials are used to reinforce learners understanding and learning YES/NO

8. Technology Integration:

- The teacher use technology effectively to support teaching and learning YES/NO
- Are digital materials and resources used to enhance the lesson YES/NO

9. Inclusivity and Diversity:

- The materials are inclusive and respectful of diverse cultures, abilities, and perspectives YES/NO

- The teacher uses materials that reflect the diversity of the learners YES/NO

10. Creativity and Innovation:

- The teacher uses materials in creative and innovative ways to engage learners
YES/NO

- Learners are encouraged to use materials to express their creativity and thinking
YES/NO

