

**UNIVERSITY OF EDUCATION, WINNEBA**

**Teacher preparedness in teaching learners with special education needs in early  
childhood centers in the Nanton District**

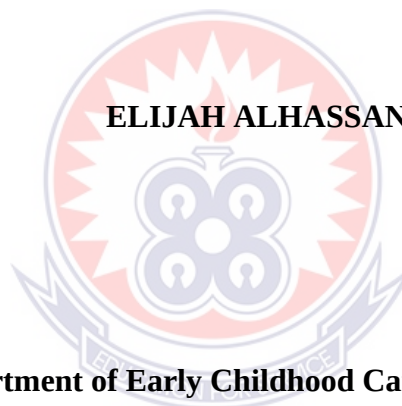


**MASTER OF PHILOSOPHY**

**2024**

**UNIVERSITY OF EDUCATION, WINNEBA**

**TEACHER PREPAREDNESS IN TEACHING LEARNERS WITH SPECIAL  
EDUCATION NEEDS IN EARLY CHILDHOOD CENTERS IN THE  
NANTON DISTRICT**



**ELIJAH ALHASSAN**

**A thesis in the Department of Early Childhood Care and Development, Faculty  
of Applied Behavioural Sciences in Education, submitted to the School of  
Graduate Studies in partial fulfillment  
of the requirements for the award of the degree of  
Master of Philosophy  
(Early Childhood Education)  
in the University of Education, Winneba**

**APRIL, 2024**

## **DECLARATION**

### **STUDENT'S DECLARATION**

I, ELIJAH ALHASSAN, 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.

NAME: DR. ADAM AWINI

SIGNATURE: .....

DATE: .....

## **DEDICATION**

To my lovely family: my father and mother, wife, children and siblings



## ACKNOWLEDGEMENTS

I would like to express my heartfelt appreciation to my Supervisor, Dr. Adam Awini and my Head of Department, Dr. Micheal Subbey. Words cannot be used to express my gratitude to you for your invaluable support, patience, corrections and timely feedback you offered which has brought this work to a successful completion. I could not have ended this journey without my thesis defense committee who offered generous knowledge and expertise to fine tune and shape this work.

I would like to also acknowledge the invaluable support of Mr. Mohammed Amin Dawuda, my District Director of Education and all officers of the Nanton District Directorate of Education. I appreciate all the assistance and advice you offered me during the period of this study. I am grateful to Mr. Yakubu Saaka Zakaria who worked tirelessly to editing, proof reading and putting this work together. I say thank you so much for the great work done. To all friends and classmates, I say am grateful to you all for the moral support and feedback you gave during the period my of research.

To all those who responded to my questionnaire during the data collection, I say thank you because the information you provided contributed greatly to the success of this research. Finally, I would like to thank sincerely my family for your support. The confidence and belief you had in me kept my spirit motivated which gave me the courage to persevere to the end of the journey, I say thank you and God bless you all.

## TABLE OF CONTENTS

|                                              |     |
|----------------------------------------------|-----|
| DECLARATION.....                             | iii |
| DEDICATION .....                             | iv  |
| ACKNOWLEDGEMENTS.....                        | v   |
| TABLE OF CONTENTS .....                      | vi  |
| LIST OF TABLES .....                         | x   |
| ABSTRACT.....                                | xi  |
| CHAPTER ONE .....                            | 1   |
| INTRODUCTION .....                           | 1   |
| 1.1 Background to the study .....            | 1   |
| 1.2 Statement of the Problem.....            | 4   |
| 1.3 Purpose of the study.....                | 7   |
| 1.4 Objectives of the study.....             | 8   |
| 1.5 Research questions.....                  | 8   |
| 1.6 Justification of the Study .....         | 9   |
| 1.7 Significance of the study.....           | 9   |
| 1.8 Delimitations.....                       | 10  |
| 1.9 Organization of the thesis .....         | 11  |
| 1.10 Operational definition of terms .....   | 11  |
| CHAPTER TWO .....                            | 13  |
| LITERATURE REVIEW .....                      | 13  |
| 2.0 Overview .....                           | 13  |
| 2.1 Theoretical framework of the study ..... | 13  |
| 2.1.1 The social model of disability.....    | 14  |
| 2.1.2 Social Cognitive Theory .....          | 16  |
| 2.2 Conceptual framework of the study .....  | 17  |
| 2.3 Early childhood education in Ghana.....  | 20  |

|                                                                        |    |
|------------------------------------------------------------------------|----|
| 2.4 Inclusive education .....                                          | 22 |
| 2.5 Implementation of inclusive education in Ghana .....               | 26 |
| 2.6 Inclusive early childhood education .....                          | 28 |
| 2.7 Teacher preparedness for inclusive early childhood education ..... | 29 |
| 2.7.1 Teaching Strategies for Teaching in Inclusive Classrooms.....    | 32 |
| 2.7.2 Resource Utilization in Inclusive Education.....                 | 35 |
| 2.7.3 Curriculum Adaptation and Inclusive Practices.....               | 37 |
| 2.7.4 Physical and Environmental Accommodations for Inclusivity.....   | 42 |
| 2.8 Critique of Literature Review .....                                | 48 |
| 2.9 Summary and Knowledge Gaps in the Literature.....                  | 50 |
| CHAPTER THREE .....                                                    | 51 |
| METHODOLOGY .....                                                      | 51 |
| 3.0 Overview .....                                                     | 51 |
| 3.1 The Study Area .....                                               | 51 |
| 3.2 Research Paradigm.....                                             | 52 |
| 3.3 Research Design.....                                               | 54 |
| 3.4 Population .....                                                   | 56 |
| 3.5 Sample size .....                                                  | 56 |
| 3.6 Sampling Techniques .....                                          | 56 |
| 3.7 Data collection Instruments .....                                  | 57 |
| 3.7.1 Questionnaires.....                                              | 58 |
| 3.7.2 Observation.....                                                 | 58 |
| 3.7.3 Interviews.....                                                  | 59 |
| 3.8 Data collection procedure .....                                    | 59 |
| 3.8.1 Observation .....                                                | 59 |
| 3.8.2 Questionnaires.....                                              | 60 |
| 3.8.3 Interviews.....                                                  | 61 |
| 3.9 Validity of the Data Collection Instruments.....                   | 62 |

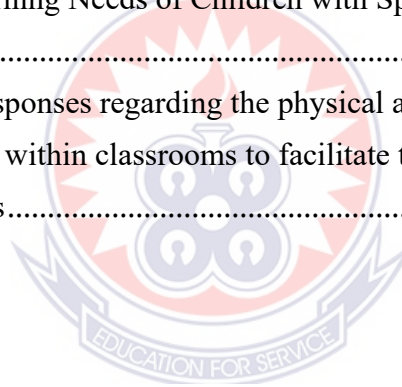
|                                                                                                                                                      |    |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| 3.9.1 Validity of the Questionnaires.....                                                                                                            | 62 |
| 3.9.2 Validity of the Interviews.....                                                                                                                | 63 |
| 3.9.3 Validity of the Observations.....                                                                                                              | 63 |
| 3.10 Reliability of the Instruments.....                                                                                                             | 64 |
| 3.10.1 Reliability of the Questionnaires .....                                                                                                       | 64 |
| 3.10.2 Reliability of the Interviews.....                                                                                                            | 65 |
| 3.10.3 Reliability of Observations .....                                                                                                             | 65 |
| 3.11 Data Analysis .....                                                                                                                             | 65 |
| 3.13 Ethical Considerations .....                                                                                                                    | 67 |
| CHAPTER FOUR.....                                                                                                                                    | 69 |
| RESULTS DISCUSSION .....                                                                                                                             | 69 |
| 4.0 Overview .....                                                                                                                                   | 69 |
| 4.1 Demographic Characteristics of the Respondents .....                                                                                             | 69 |
| 4.1.1 Sex.....                                                                                                                                       | 69 |
| 4.1.2 Age .....                                                                                                                                      | 70 |
| 4.1.3 Qualification of Respondents.....                                                                                                              | 71 |
| 4.1.4 Number of years respondents have served in their current role.....                                                                             | 72 |
| 4.1.5 Number of years respondents have served in the Nanton district.....                                                                            | 73 |
| 4.2 Strategies for Teaching Children with Special education needs .....                                                                              | 73 |
| 4.2.1 Introduction to the Survey data Tables .....                                                                                                   | 78 |
| 4.3 Utilization of Instructional Resources by Teachers in Teaching Early Childhood Learners with Special education needs .....                       | 80 |
| 4.4 Adaptation of the Current Curriculum to Accommodate the Learning Needs of Children with Special education needs at Early Childhood Centers ..... | 87 |
| 4.5 Physical and Environmental Accommodations within Classrooms that Facilitate the Inclusion of Children with Special education needs.....          | 92 |
| 4.6 Discussion of Observation Findings .....                                                                                                         | 97 |
| 4.6.1 Curriculum Modifications.....                                                                                                                  | 97 |
| 4.6.2 Instructional Resource Use .....                                                                                                               | 98 |

|                                              |     |
|----------------------------------------------|-----|
| 4.6.3 Teaching Strategies .....              | 98  |
| 4.6.4 Environmental Modifications .....      | 99  |
| 4.6.5 Conclusion .....                       | 99  |
| CHAPTER FIVE .....                           | 100 |
| SUMMARY, CONCLUSIONS AND RECOMMENDATION..... | 100 |
| 5.0 Overview .....                           | 100 |
| 5.1 Summary .....                            | 100 |
| 5.2 Key Findings.....                        | 101 |
| 5.3 Conclusions.....                         | 104 |
| 5.4 Recommendations.....                     | 105 |
| REFERENCES .....                             | 106 |
| APPENDICES .....                             | 127 |



## LIST OF TABLES

|                                                                                                                                                                                              |           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Table 3.1: Calculated Cronbach Alpha coefficients for the different scales in the instrument (N=47).....                                                                                     | 64        |
| Table 4.1: Sex distribution of the respondents.....                                                                                                                                          | 69        |
| Table 4.2: Age distribution of the respondents .....                                                                                                                                         | 70        |
| Table 4.3: Qualification of the respondents .....                                                                                                                                            | 72        |
| <b>Table 4.4: Number of years respondents have served in their current role.....</b>                                                                                                         | <b>72</b> |
| Table 4.5: Number of years respondents have served in the Nanton district.....                                                                                                               | 73        |
| Table 4.6: Teachers' knowledge and skills regarding strategies for teaching children with special education needs (N=80).....                                                                | 79        |
| Table 4.7: Teachers' utilization of instructional resources in teaching early childhood learners with special education needs .....                                                          | 85        |
| Table 4.8: Responses of teachers regarding how they adapt the Current Curriculum to Accommodate the Learning Needs of Children with Special education needs in Early Childhood Centers ..... | 90        |
| Table 4.9: Teachers' responses regarding the physical and environmental accommodations made within classrooms to facilitate the inclusion of children with special education needs.....      | 95        |



## ABSTRACT

This study assessed the preparedness of teachers to teach learners with special education needs at early childhood education centers in the Nanton District. The convergent mixed methods research design was adopted to guide the study. A total of 80 Kindergarten teachers, 41 head teachers and 8 district education officers were sampled for the study using the purposive and random sampling techniques. Data were collected using questionnaires, observations and interviews. Quantitative data was analyzed in the IBM Statistical Product and Service Solution (IBM SPSS, Version 26) using descriptive statistics such as frequencies and percentages while the qualitative data was analyzed using thematic analysis. The results revealed that majority of teachers had considerable knowledge of and used a range of strategies for teaching learners with special education needs. It was further revealed that teachers utilized wide range of instructional resources in their classrooms to facilitate the learning of children with special education needs. Also, it was revealed that majority of the teachers adapted the curriculum by modifying instructional and assessment materials to accommodate the learning needs of learners with special education needs. Again, the results showed that several physical and environmental modifications were undertaken by majority of the teachers to accommodate the learners with special education needs. Several support systems were available and provided to teachers to enhance knowledge of inclusive practices. The study concluded that teachers at early childhood education centers are prepared for teaching learners with special education needs.

The study recommends that assistive and adaptive technologies are made available and accessible to teachers at the early childhood centers. Also, Nanton District Education Directorate should organize more in-service programs to equip teachers with modern and technology-based inclusive teaching strategies, including the use of assistive and adaptive technologies. The Ghana Education Service of Nanton should give teachers training on curriculum adaptations using technology such as audio versions and transcriptions. Finally, Nanton Ghana Education Service should train teachers on the use of assistive and adaptive devices to help them modify their classroom environment for effective teaching and learning



## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background to the study

In recent years, there has been a growing recognition of the importance of inclusive education, particularly in the context of early childhood education (Ackah-Jnr. & Udah, 2021; Ackah-Jnr., 2018). Inclusive education, as defined by several authors including Loreman (2005), involves providing all students, including those with special education needs, the opportunity to learn and participate in the same educational activities alongside their peers. According to the National Council for Special Education (2014), learners with special education needs refer to learners that have a physical, sensory, mental health, learning disability, or any other condition that limits their ability to engage in and benefit from education and causes them to learn differently than their peers without that condition.

While this philosophy is widely endorsed, its effective implementation hinges on several factors including the preparedness and capability of educators. This assertion is supported by Wolf (2020) who opined that the efficiency of inclusive early childhood education (IECE) depends largely on the practices of teachers; how well they plan to teach, how they manage their classroom resources and assess their lessons. In effect, teachers in inclusive early childhood classrooms are required to be adequately prepared to be able to teach, manage classrooms and carry out assessment of their lessons.

According to Owino (2019), teachers' preparedness for inclusive education and for implementing inclusive practices involves the acquisition of adequate knowledge and awareness of inclusive education as well as the policy for it, the development of positive attitudes towards students with special education requirements and familiarity with special education assessment methods.

The acquisition of the right set of skills and competencies by educators is essential to putting inclusive education into practice. This is supported by Okoye and Ifi (2020) who argue that teachers need to have skills preparedness. According to Okoye & Ifi (2020), the level of and diversity of skills possessed by teachers to a great extent affect their effectiveness in the classroom. The skills and knowledge of teachers regarding teaching one of the most important aspects of teacher preparation for teaching students with special education needs is the use of instructional methods.

According to Makoelle and Thwala (2022), teaching strategies such as team teaching, use of assistant teachers, differentiated instruction, using technology to promote inclusiveness, scaffolding instruction, and reciprocal teaching offer great opportunities for teachers to meet the individual learning requirements of their students and make up for the knowledge deficit of individual teachers.

Another critical factor that contributes to teachers' preparedness for instructing students who require special education is the effective utilization of instructional and physical resources. According to Okoye & Ifi (2020), the provision of a variety of physical resources is important in providing functional inclusive education to take care of the diverse needs of students especially students with special education needs. Teaching and learning materials and instructional time also constitute a key part of the resources required in inclusion. Resources such as assistive and adaptive technologies, in order to meet the demands of students with special education needs, peripatetic services and support personnel such as Braille transcribers and sign language interpreters are especially crucial. The preparedness of teachers to use these resources in their teaching is therefore very important in implementing inclusive education.

The ability of instructors to adapt and adjust the curriculum to meet the learning needs of all students is another crucial component of their readiness to educate students with special education needs. In order to make the curriculum responsive to the needs of all students, including those with special education needs, it is necessary to employ a variety of strategies, including differentiated instruction and assistive and adaptive technologies (Okongo et al., 2015). Curriculum adaptation and modification as pointed out by Tyagi (2016) is important in the process of instruction and learning in inclusive classrooms as it enables suitable changes to be made so that children with disability can learn according to their ability.

Another factor which is of critical importance to teacher preparedness for instructing students with special education requirements is the educators' knowledge of environmental and physical modifications necessary for making the learning environment accommodating to learners with special education needs. It has been noted that the physical environment poses as among the main obstacles to inclusive education in mainstream schools. This is supported by Mulinge (2016) who contend that inaccessible environments generate disability by constructing barriers to inclusion and participation.

There are several ways through which environmental and physical modifications can be done. These include modifying the classroom environment with assistive technologies and classroom design. Student access to education, active and autonomous participation in the educational process, peer interaction, and control over their own learning experiences are all made possible by the use of assistive technologies (Winter & O'Raw, 2010). Additionally, by offering support—such as modifying

curriculum activities and content to meet individual requirements in a minimally restrictive setting, assistive technology in the classroom help students perform better.

Numerous research on inclusive education and teacher readiness have been carried out in Ghana. For example, studies of teacher attitudes, practices, and readiness for inclusive education in Ghana have been conducted by Opoku-Nkoom and Dogbe (2020). However, as identified by Deku and Vanderpuye (2017), there is still more to be explored regarding opinions of instructors regarding the physical surroundings, the curriculum, and teacher preparation. Opoku-Nkoom and Ackah-Jnr. (2023) also contend that little attention is still focused on the practices of headteachers and teachers in inclusive pilot schools in Ghana.

The Nanton District, like many others, faces the challenge of meeting the many requirements of young students, including those who require special schooling. The successful inclusion of these children in mainstream educational settings necessitates not only a supportive policy framework but also well-equipped and knowledgeable teachers. This study was undertaken to assess the preparedness of teachers to teach learners with special education needs at early childhood education centers in the Nanton District with a focus on the current state of teacher preparedness, curriculum adaptability, resource utilization, and support systems for teachers.

## **1.2 Statement of the Problem**

All children, even those with special education needs, benefit from early childhood education in terms of their overall development. But a lot of kids with special schooling requirements might be left out of early childhood education especially in mainstream public schools because of inadequacies of teachers in handling all learners.

The researcher during routine monitoring visits to kindergarten schools in the district as Early childhood coordinator observed that, most teachers at the Early childhood centers in the Nanton District exhibit notable inadequacies in modifying curricula, employing appropriate strategies, utilizing instructional resources properly and adapting the physical environment to support Learners with Special Needs.

These deficiencies limit the effectiveness of inclusive education at the foundation stage and as well affect developmental outcomes of Learners with Special Needs. These challenges call for urgent need to examine the causes, extent and implications of teacher related inadequacies to improve inclusive practices in the Nanton District. This observation suggests that teachers did not provide the needed assistance for students with unique needs which can affect their participation and learning in class activities. Inclusion serves as an effective method to guarantee that every child are admitted and taught in the same classrooms at the early childhood centers.

However, including students with specific needs education needs in mainstream classrooms has brought with it several challenges. Addressing these challenges requires a sound understanding of how teachers are well-prepared to teach and satisfy every student's educational needs, including those of individuals with unique learning needs in their classrooms.

Some previous studies have provided insights into various aspects of teacher preparedness for inclusive education in Ghana. However, these have been focused on teachers' attitudes and perceptions regarding teaching learners with special education needs (Alhassan, 2014: Asare, 2019 & Boakye-Akomeah, 2015), and knowledge of teachers (Joseph, 2015). Currently, there is little documented information on some critical aspects of inclusion such as teaching strategies, resource utilization, curriculum

adaptation, physical accommodations, and support systems. Further, few studies (Ackar-Jnr. & Udah, 2021) have investigated the preparedness of teachers at the early childhood education centers to teach in inclusive classrooms.

The Nanton District is one of the most deprived and least researched districts in the Northern Region of Ghana. A personal communication the researcher had with the Head of Supervision at the District Education Office revealed that the district is bedeviled with a lot of challenges in all aspects including education. Issues such as poor educational infrastructure and inadequate well-trained teachers are a few of the challenges affecting the delivery of education in the district (A. W. M, Baba, personal communication, February 15, 2023). Despite the emphasis on inclusive education in the district, there is little documented information on the preparedness of teachers to teach learners with special education needs at early childhood centers (A. W. M, Baba, personal communication, February 15, 2023).

Specifically, information on effective strategies for teaching children in early childhood centres who require special education, information of how instructional resources are utilized by teachers to accommodate students with specific needs education needs, information on how the curriculum is modified and modified to accommodate students with special education requirements, information on environmental and physical modifications and the support systems available to teachers are currently poorly understood (A. W. M, Baba, personal communication, February 15, 2023).

While there is recognition of the importance of instructional resources (Okongo et al., 2015), there is dearth of information on how teachers in the Nanton District utilize these resources when educating early childhood students who require special schooling (A. W. M, Baba, personal communication, February 15, 2023). Also, a personal

communication with the Head of Supervision at the District Education Office revealed that information on physical and environmental accommodations within classrooms, including the availability of assistive technologies and teaching resources is currently scarce (A. W. M, Baba, personal communication, February 15, 2023). Since this information is critical in understanding teacher preparedness for inclusive education, it is imperative to explore how these accommodations contribute to or hinder the inclusion of kids with special education requirements, impeding the growth of effective inclusive practices.

While support systems for teachers are acknowledged in the literature (Kuroda et al., 2017), there is a lack of comprehensive studies that delve into the specific professional development opportunities, mentorship programs, and additional resources available in the Nanton District. The literature falls short in analyzing how these support systems contribute to teachers' preparedness to instruct students who require special schooling.

Addressing these gaps is imperative for developing evidence-based policies and interventions that can increase the early childhood education system's inclusion in the Nanton District. This study seeks to fill these gaps by conducting a thorough investigation into the identified issues, of teacher preparedness leading to improvement of inclusive education practices.

### **1.3 Purpose of the study**

The main aim of the study was to assess teacher preparedness towards teaching learners with special education needs in early childhood centers in the Nanton District

#### **1.4 Objectives of the study**

This study's focus were to:

1. Assess the strategies used by teachers in the Nanton District for teaching learners with special education needs.
2. Investigate the capabilities of teachers in the Nanton District to use instructional resources in educating early childhood learners with special education needs.
3. Assess the extent to which the current curriculum in early childhood is adapted to accommodate the learning needs of learners with special education needs.
4. Investigate the environmental accommodation within classrooms that facilitate the inclusion of children with special education needs.

#### **1.5 Research questions**

Based on the study objectives, the following research question was formulated;

1. What strategies do teachers in the Nanton District employ when teaching children with special education needs in early childhood settings?
2. Do teachers in the district have the expertise or capabilities to use instructional resources when educating early childhood learners with special education needs?
3. What is the extent of modifications or adjustments made by teachers to the current curriculum in early childhood to accommodate learners with special education needs?
4. What environmental accommodations within classrooms facilitate the inclusion of children with special needs?

## **1.6 Justification of the Study**

Studies on teacher preparedness for inclusive early childhood education are crucial for informing policy decisions and changes and for ensuring the effective application of inclusive education policies. This study was important because it provided an understanding of the expertise and abilities of educators in the Nanton District which helped in assessing the overall preparedness to cater for the needs of learners with special education needs. Furthermore, the utilization of instructional resources is an essential component of inclusive schooling. The quality of education given to students with special education needs can be significantly impacted by the availability and efficient utilisation of resources. Investigating how teachers in the district made use of these resources shed light on potential gaps and challenges that hinder the implementation of inclusive practices.

The curriculum forms the backbone of educational programs, and its adaptability is essential for accommodating the diverse learning needs of children. A comprehensive examination of the existing curriculum, including instructional and assessment materials, was imperative in identifying areas where adjustments were needed to create a more inclusive learning environment.

Moreover, the physical and environmental accommodation within classrooms, including the availability of assistive technologies and teaching resources, are key factors in promoting an inclusive setting. Understanding the current state of these accommodations provided insights into the practical aspects of inclusivity.

## **1.7 Significance of the study**

The implementation of the inclusive education policy in Ghana at all levels of the education system is hinged on teachers and their preparedness to facilitate learning

in inclusive classrooms. This study provides valuable information on teacher preparedness for implementing the inclusive education policy in early childhood centers in the Nanton District. This information could serve as a guide and used as basis for the government, policy makers and the Ghana Education Service (GES) to put in place adequate measures including in-service training opportunities to increase educators' ability to efficiently support learners in inclusive classrooms. Teachers could use the findings of the study to refine and adopt appropriate pedagogies, select appropriate teaching resources in educating Students with special schooling requirements in inclusive childhood settings.

Additionally, The study's conclusions will help significantly in filling the gaps in knowledge regarding how teachers in early childhood centers in the Nanton district are prepared for putting the school inclusion policy into practice. The study will therefore help in contributing to the growing body of information about inclusive education in Ghana, which might be used as the foundation for further research in other parts of Ghana in the future.

### **1.8 Delimitations**

While this study aimed to contribute valuable insights into teacher preparedness, resource utilization, curriculum adaptation, physical accommodations, and support systems for students with special schooling requirements in early childhood centers in the Nanton District, certain delimitations were set to guide the scope and boundaries of the research.

1. This study was specifically delimited to the Nanton District because that is where the problem was identified

2. The research was delimited to early childhood centers, encompassing learners at the pre-primary and early primary
3. The study involved both quantitative and qualitative research methods, but the emphasis on one approach over the other was varied. The balance between quantitative and qualitative data was influenced by practical considerations and research priorities.

### **1.9 Organization of the thesis**

Five chapters comprised the structure of the thesis. The study's background, problem statement, research aims, research questions, importance, study delimitation, and operational definitions of words were all included in Chapter one. The review of linked literature on theoretical review, theoretical framework, and conceptual framework comprised Chapter two. Research design, philosophical foundations, study population, sampling approach, sample size, data collection instrument, data collection protocol, data analysis plan, and ethical considerations were all discussed in the study's third chapter on methodology.

The study's findings and discussions were covered in Chapter 4. The study's summary, results, and suggestions were given in the fifth chapter.

### **1.10 Operational definition of terms**

**Teacher preparedness:** This term as used in this research refers to the competencies of teachers in teaching learners with Special needs. These competencies cover the areas of teaching strategies, resource utilization, curriculum modification and environmental accommodations.

**Early childhood centre;** This is an educational level where children who fall Individuals aged 0 to 8 years old are nurtured or educated. It includes (Kindergarten 1 and 2 to Basic1-3).

**Inclusive education (IE):** inclusive education involves educating children with disability alongside the ‘normal’ children in the mainstream classroom by delivering the necessary support services to them instead of separating them.

**Special education needs:** Children with physical disability, mild to moderate visual and hearing problems.

**Early childhood education (ECE):** Education provided to children at Kindergarten to basic three.



## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

#### **2.0 Overview**

This chapter situates this study in both theoretical and conceptual contexts and provides the basis of the methods adopted by the researcher. A comprehensive analysis of pertinent literature on several facets of the research issue is also included in this chapter.

- Ghana's early childhood education system,
- The Ghana's adoption of the inclusive educational strategy,
- Teacher preparedness for the implementation of the inclusive education policy
- Effective instructional techniques for instructing students in inclusive classrooms
- Instructional resources and their utilization in inclusive classrooms.
- Curriculum modifications and adaptation for instructing students with special education requirements.
- Environmental and physical modifications for instructing students who require special schooling.
- Training and support systems for educators to instruct students with special education requirements.

#### **2.1 Theoretical framework of the study**

This study is underpinned by the social model of Disability by Mike Oliver (1996) and the Social Cognitive Theory. These two theories provide strong basis and rationale for the inclusion of learners with disabilities and special education needs in formal mainstream and normal classrooms.

### **2.1.1 The social model of disability**

The social model of disability, sometimes known as the "barriers approach," views disability not in terms of an individual's impairment but rather in terms of structural, environmental, and attitude barriers that affect disabled people's lives and that, if left unchecked, could prevent them from being included and moving forward in a variety of spheres of life, such as work, education, and leisure (Oliver 1996). According to the disability social model, disablement is perceived less as an attribute of a person and more as a set of circumstances, many of which arise from the external environment.

This widely accepted model of disability is predicated on the knowledge that society's failure to provide suitable services and sufficiently ensure that the needs regarding all disabled people are completely taken into account is the sole cause of disability, not personal limitations or impairments (Oliver, 1996). The disadvantage and "loss" that people with disabilities experience are thought to be socially created, while the spectrum of impairment is considered as a naturally occurring range of variety within the human race (Llewellyn et al., 2016). Therefore, this model believed that, the disability itself is eradicated once societal obstacles to the reintegration of individuals with physical disabilities are addressed. The prerequisites include societal changes, tangible environmental changes, modifications to environmental control systems, adjustments to social roles, and adjustments to the attitudes of the community at large.

Essentially, the social model of disability presents a paradigm shift from the way society hitherto viewed and treated people with disability and special education needs especially in educational settings. The establishment of special schools to isolate learners with impairments and special education needs, for instance, has been criticized as a form of exclusion by this model. The model places responsibility on the society to

remove barriers such as inaccessible classrooms, lack of sign language interpreters, stereotyping and discriminatory laws and policies in order to create an inclusive school environment where learners with impairments can fully access and participate in educational activities.

#### **2.1.11 Justification and how the theory relates to the study**

The social model of disability was adopted in this study because it is aligned with the core principle of inclusive education, which seeks to eliminate barriers that impede the full participation of students with impairments in conventional learning environments. By removing barriers such as inadequately prepared professional teachers, accessible and accommodating learning environments can be created for all students including those with special education needs. By recognizing that discrimination against learners with special education needs arises from societal attitudes and structures, the social model of disability emphasizes the need for the society through governments and policy makers to ensure that learners with special education needs have equal access to quality education and feel a sense of belonging as part of the society. This model was used in the study because it moves away from viewing learners with special needs as ‘problems’ and instead highlights how unprepared teachers are or how rigid curricula create disabling conditions. Moreover, in rural or underserved areas like Nanton District where resources and teacher training programs on inclusive may be limited, the social model highlights structural and systemic gaps rather than blaming the learners. Social model of disability aligned with or relates to teacher preparedness in that it reframes teacher preparedness by shifting the emphasis from diagnosing or remediating individuals’ students to preparing

teachers to proactively remove barriers in the learning environment . this model leads to more inclusive, feasible and equitable teaching practices.

### **2.1.2 Social Cognitive Theory**

One relevant and appropriate theory for the study is Albert Bandura's Social Cognitive Theory. This theory posits that individuals learn from observing others, and their learning is influenced by social interactions, cognitive processes, and environmental factors (Bandura, 1986). Regarding inclusive education, this idea can be used to comprehend how teachers acquire and apply the knowledge and skills necessary for teaching learners with special education needs. Social Cognitive Theory emphasizes the importance of modeling, observational learning, and self-efficacy in the learning process. Bandura (1986) contends that individuals learn not only through direct experiences but also by observing others and modeling their behaviors. In the context of teacher preparedness, educators may acquire effective strategies for teaching children with special education needs by observing their colleagues, participating in professional development opportunities, and engaging in collaborative practices.

Moreover, Social Cognitive Theory highlights the role of self-efficacy is the belief in one's own abilities to perform a task. In the inclusive education setting, teachers with high self-efficacy in employing techniques for students who require special schooling are likely to approach challenges with greater confidence and persistence (Bandura, 1997).

#### **2.1.21 Justification and how the theory relate to the study**

By applying Social Cognitive Theory to the study, researchers can explore how teachers in the Nanton District acquire and apply knowledge, observe and learn from their peers, and develop the self-efficacy needed to successfully instruct students who

require special education in early childhood centers. In addition, this theory was used in the study because it supports interventions such as peer learning, mentoring, and reflective practice all of which can be crucial in building teacher preparedness in rural or low resources setting like Nanton. Again, unlike fixed traits, self-efficacy and beliefs can be developed through training, support systems and experience making this theory practical for guiding policy and teacher development initiatives. The social Cognitive theory aligned with or relates to teacher preparedness by emphasizing on how teachers learn through observation, reflection and interaction with others. Social Cognitive theory based trainings also build confidence, promotes adoptive behavior and fosters lifelong learning which are all crucial traits of a prepared and effective teacher

## **2.2 Conceptual framework of the study**

According to this study, the adoption of an inclusion early childhood learning policy is heavily dependent on teacher preparedness to teach in classrooms that have both learners with special education needs and those without special education needs learning together. Teacher preparedness as conceptualized in this study has several determinants or indicators.

The indicators considered in the study included the application of knowledge, skills and methods for instructing students who require special education, effective utilization of instructional resources to meet the needs of learners with special education needs, ability to adapt the curriculum to accommodate the needs of learners with special education needs, physical and environmental accommodations and availability and access to support systems for teachers. The knowledge, skills and Teaching methods for students with specific learning needs include knowledge of teaching pedagogies, such as collaborative and cooperative learning, that accommodates students that require special education.

Teachers' knowledge of inclusive practices, including forming good perceptions and having positive attitudes towards students who require special education do not only make them feel confident and motivated to learn among their counterparts, but encourages those without special education needs to also accept them and learn with them in the same classroom.

Knowledge of inclusive practices by teachers demonstrates their competence and preparedness to facilitate learning among learners with different needs including those who require special education. Knowledge of the most appropriate teaching resources, teaching strategies and assessment methods used in inclusive classrooms to a large extent shows the readiness of educators to put inclusive education ideas into practice in the classroom. Teachers' knowledge, skills and strategies for teaching learners with special education needs depends largely on the support systems such as continuous professional development and mentorship programs available and accessible to them. These resources allow educators to increase their proficiency and to adopt inclusive practices in their classrooms.

It is anticipated that teachers will be able to adapt the curriculum to fit the needs of students with special education needs once they have the necessary training and expertise to instruct in inclusive classrooms, ensure that physical and environmental modifications are done to make learning comfortable and enjoyable for learners with special education needs and effectively utilize instructional resources. In effect, the ability of teachers to carry out the above demonstrates their preparedness to Participate in the commencement of inclusive education by teaching in inclusive classrooms. The study's conceptual framework is depicted in Figure 1.

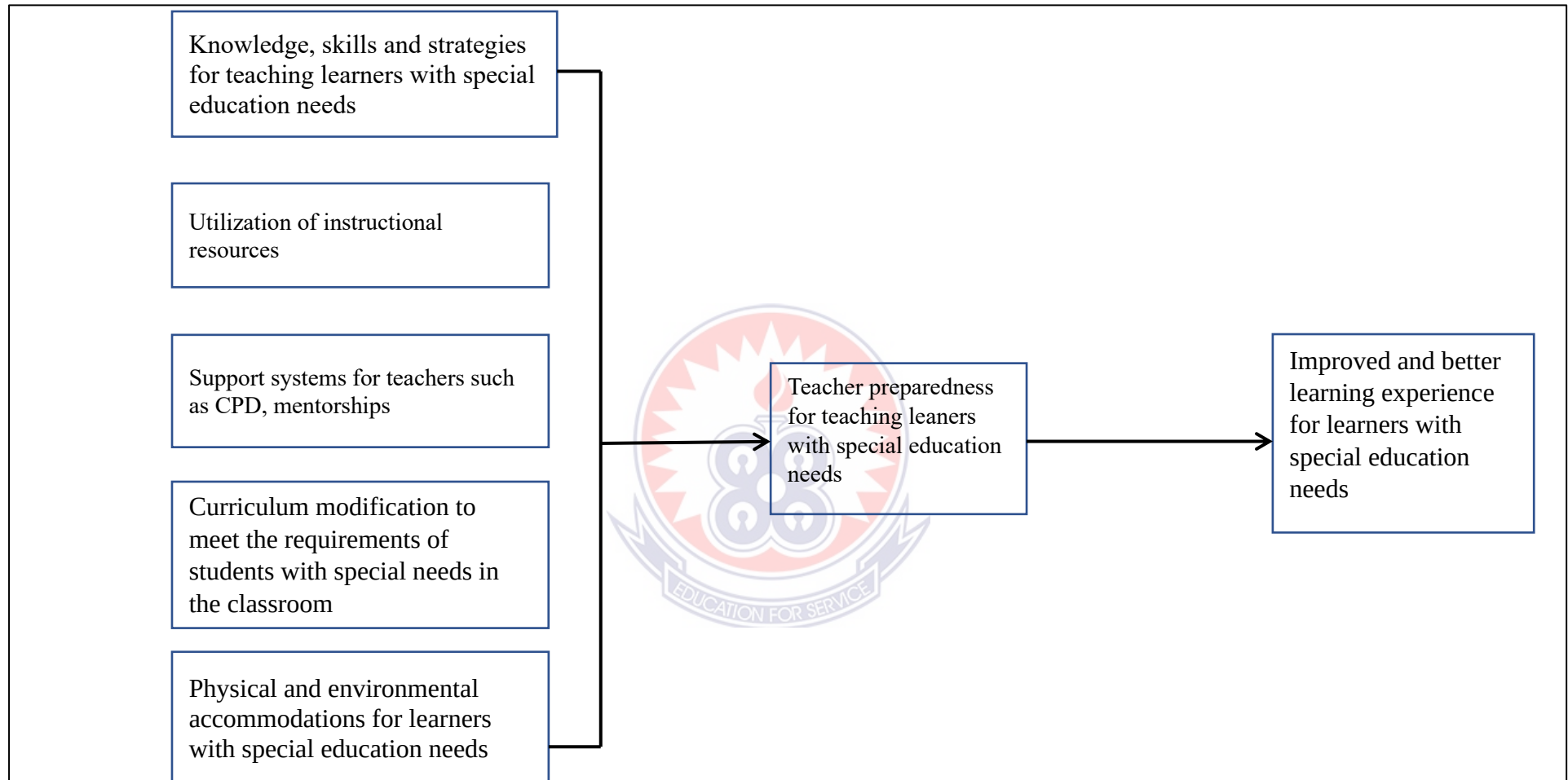


**Figure 1: Conceptual framework of the study**

**SOURCE:** Researcher's own Construct, 2024

### 2.3 Early childhood education in Ghana

Early childhood education has been defined variously in literature. For instance, Abdulai (2014) defined early childhood education as a program that aims at improving the skills and competencies of the child. OECD (2024) defined early childhood education to include all arrangements of providing care and education for children under compulsory school age, regardless of setting, funding, opening hours or program content. UNESCO (2025) defined early childhood education as a holistic and integrated approach for the provision of the health, nutrition, protection, and education needs and services for the development of the child. Also, the UNESCO (International Bureau of Education) (2006) referred to early childhood education as any organized educational provision outside of the home for children in the age range of one to seven years. Early childhood education is termed variously in different jurisdictions. For instance, according to Yorke (2012), terms used for early childhood education include pre-school, early years, Kindergarten, playgroup, nursery, pre-grade one, preparatory year and ‘zero year’.

In Ghana, early childhood education, also called pre-school education, constitutes the type of education given to children from ages 0 to five years to prepare them for enrolment in formal primary school (Yorke, 2012). According to Ackah-Jnr. et al. (2022), early childhood education in Ghana has grown from a traditional approach to a more formalized and modernized system of care and education services for young children. Whereas in the past two decades, ECE was given mainly by the private sector in few schools which were located largely in cities and towns, currently, ECE has increasingly become an integral part of formal education and the public basic school system (Yorke, 2012). In supporting this assertion, Ackah-Jnr. et al. (2022) stated that there have been dramatic changes in early childhood education in the last two decades with increased state-stakeholder attention, support, collaboration and resources. This can

be attributed to Ghana's adoption of a national early childhood care and development policy in 2004.

By funding kindergarten facilities and ensuring that all children, particularly the most vulnerable, have access to them, the national early childhood care and development strategy was established to support children's growth and safety (Bago et al., 2019). The policy was also aimed at providing quality early childhood education to all kids in order to lessen disparities in how well they develop (Wolf et al., 2019). Following the implementation of the policy, there have been some improvements in ECE in the country. For instance, enrolment and attendance in pre-primary school have increased and the number of public pre-primary schools and private pre-primary schools have increased by about 2.1% and 8.7% respectively (Bago et al., 2019).

Ghana's pre-primary school or early childhood education is made up of two years largely targeted at children between the ages of three to four years. Teaching and learning activities at this level is guided by the Kindergarten (KG) curriculum developed in 2019 by the National Council for Curriculum Development (NaCCA). "The rationale for this curriculum is to provide, through play and use of creative learning and teaching approaches, a positive learning experiences to learners at the KG level so as that they are ready for school" (NaCCA, 2019 P. iv). The KG curriculum has at its heart play-based approaches and activities to motivate learners to attend, stay in school and perform better socially and academically (NaCCA, 2019). Ghana's KG curriculum is an integrated thematic curriculum that is focused on adopting the integrated approach of teaching in the early years of school instead of the subject-based approach. The four learning areas in this curriculum include language and literacy, numeracy, creative arts and our world, our people. These learning areas are integrated, and interwoven in the instruction of the language skills (NaCCA, 2019).

One of the most important aspects of the KG curriculum is its emphasis on inclusion. According to NaCCA (2019), “inclusion is to ensure access and learning for all learners including learners with special education needs including gifted/talented, less academically endowed, physically/socially challenged.” The curriculum recognizes that learners have individual needs and different learning styles, learning experiences and different levels of motivation for learning and calls on teachers to plan, deliver and reflect on daily learning episodes taking these differences into consideration (NaCCA, 2019).

## **2.4 Inclusive education**

The concept of inclusion has been defined in a variety of ways and in many instances assumes different meanings in different contexts. Based on this, it has been suggested that some choices on the appropriate usage of the term must be made in order to evaluate the degree of inclusion occurring in educational settings (Ainscow et al., 2006). A more elaborate view about inclusion which Ainscow et al. (2006) refer to as ‘six ways of thinking about inclusion’ has therefore been provided. This consists of viewing;

1. Concerning inclusion for students with disabilities and those classified as ‘having special educational needs’. They noted that although this view of inclusion is helpful in allocating resources to address the requirements of students with special education needs, but it can also impede the growth of a more comprehensive perspective on inclusion.
2. Reacting to disciplinary exclusion with inclusion.
3. inclusion with regard to every group deemed susceptible to exclusion. This is in line with the broader trend of inclusion in terms of eliminating prejudice against marginalised groups.

4. Developing the school for everyone through inclusion. This concerns a mutually beneficial connection that acknowledges and celebrates diversity between communities and schools.
5. As "Education for All," inclusion This relates to the UNESCO declaration from 2000 on 'Education for All'.
6. Using inclusion as a guiding principle in society and education.

Winter and O'Raw (2010) in their literature review of the principles and practices relating to inclusive education for children with special education needs, came out with a definition of inclusion. According to them, "inclusion is a process of addressing and responding to the diversity of needs of learners through enabling participation in learning, cultures, and communities, and removing barriers to education through the accommodation and provision of appropriate structures and arrangements, to enable each learner to achieve the maximum benefit from his/her attendance at school."

The core principle supporting inclusive education as identified by Winter and O'Raw (2010) is the idea that students with disabilities or special or additional learning requirements should be taught in regular classrooms. They contend that regardless of any challenges or distinctions, all students should learn together as part of the core tenets of an inclusive education. They contend that in order for a school to be considered inclusive, it must meet the needs of every student and embrace diversity as a means of enhancing education for everyone.

Other principles of inclusion that are relevant and must guide inclusive practices in schools are reflected in the four main components that UNESCO has outlined (Winter and O'Raw, 2010). These include;

1. The process of inclusion can be seen as an ongoing quest to discover more effective strategies to address diversity. It places a strong emphasis on learning to accept and benefit from differences. According to this theory, both adults and children can benefit from differences as a stimulus for learning.
2. Inclusion as a way of identifying and removing barriers.
3. Inclusion is about the presence, participation and achievement of all students.
4. Groups of students who might be at danger of marginalisation, exclusion, or underachievement are given special attention through inclusion. This demonstrates the moral obligation to make sure that those who are "at risk" are closely watched and that measures are made to guarantee their attendance, involvement, and success in the educational system.

The above conceptions of inclusion have led to various definitions of inclusive education. Parnell as cited by Komabu-Pomeyie (2020) defined inclusive education as the “capacity of an education system to provide the academic and behavioral support needed for all students, regardless of disability or difference, to participate and succeed in the academic, social, and extra-curricular activities of the school alongside their peers.” Loreman (2005) defined inclusive education as the “full inclusion of children with diverse abilities in all aspects of schooling that other children are able to access and enjoy.”

The call for all countries to formulate inclusive education policies was first amplified by the Salamanca Statement (Framework for Action) (1994) which resulted from the World Conference on Special education needs Education held in Salamanca, Spain. Among other things, this framework made the call for all schools to institute measures that would enable them accommodate all children regardless of their physical, social, emotional, intellectual, linguistic and other conditions (UNESCO, 1994). Other international conventions such as the 2006 Convention on the Rights of Persons with

Disabilities (CRPD) and the Convention on the Rights of the Child (CRC) call for inclusive education at all levels of the education system (Charles, 2011).

Inclusive education is implemented in different ways in different countries. According to Ackah-Jnr. (2011), two main models or types of inclusive education have been distinguished. These are the partial inclusion and the full inclusion. Partial inclusion as defined by Ackah-Jnr. (2011) refers to the situation where children with disabilities and special education needs spend portions of their day separately in a special education classroom and together with other learners in a regular classroom with the provision of supportive services. In this case, learners with special education needs learn separately in self-contained classrooms but participate in daily inclusion activities with their peers without special education needs.

Full inclusion on the other hand is where learners with disabilities and special education needs spend the whole day learning together in the same classroom or learning environment with their peers without special education needs. According to Ackah-Jnr. (2011), under this model, support may be given to the regular teacher and the child with disabilities. In addition to the development of the social skills of children with disabilities, this model helps to improve the attitude of non-disabled children toward children with disabilities and to develop positive relationships and friendships between disabled and non-disabled children (Snell & Brown 2011).

Another categorization of the models of inclusion was provided by Klibthong (2012). These include full inclusion model, the cluster model, the reverse inclusion model and social inclusion model. The full inclusion model as described by Klibthong (2012) is where youngsters with special needs and developing youngsters engage completely in a program or service that serves all children. Accordingly, the goal of inclusion is to change school cultures and pedagogy in order to improve all kids' access, acceptance,

and engagement in a variety of activities, as well as to raise each child's growth and achievement.

A group of kids with special needs participate in a program that runs concurrently with a mainstream program under the cluster model, which is defined as an inclusionary approach. A small number of children who are usually developing take part in a program that primarily serves children with special needs, which is known as the reverse inclusion paradigm. On the other hand, under the social inclusion approach, children with special needs are cared for in separate environments and occasionally interact socially with children who are typically developing.

Aside these two main models, inclusive education could also assume three different types. These are functional inclusion, responsible inclusion and social inclusion. Detailed explanation of these types of inclusion is found in Ackah-Jnr. (2011).

## **2.5 Implementation of inclusive education in Ghana**

In Ghana, Over the past thirty years, enormous efforts have been undertaken to encourage inclusion at all educational levels. For example, the goal of the Free Compulsory and Universal Basic Education (FCUBE) policy was to improve participation, retention, and access for all school-age children including children with disabilities (Opong-Boateng, 2020). Similarly, the ESP (2018-2030) and the early childhood education policy have made provisions for inclusive education at various levels of the education system (Ackah-Jnr. & Uda, 2021).

The implementation of inclusive education in Ghana is currently guided by the inclusive education policy. This policy, according to Komabu-Pomeyie (2020) seeks to offer a venue for meeting the various educational requirements of every school-age Ghanaian and ensure that the teaching and learning environment met the needs of all

students. Opoku-Agyemang (2015) in a foreword to the policy indicated that the policy seeks to define the strategic path of the government for the education of all children with special educational needs. As captured in the policy document, “the overarching goal of the inclusive education (IE) policy is to redefine and recast the delivery and management of educational services to respond to the diverse needs of all learners within the framework of universal design for learning (UDL) and child friendly school concept.”

The characteristics of the policy as enumerated by Opoku-Agyemang (2008) include;

1. Regardless of disparities in age, gender, ethnicity, language, disability, etc., all children are capable of learning.
2. Every child is entitled to get a foundational education.
3. The educational system ought to be flexible in order to accommodate children's requirements.
4. IE makes it possible for educational systems, institutions, and practices to be tailored to each child's needs; and
5. It is a component of a larger plan to advance an inclusive society.

The Ministry of Education (MoE) is primarily in charge of carrying out the policy on inclusive education as outlined in the policy paper and its agencies. The MoE through its agencies particularly the Ghana Education Service is enjoined to put the inclusive education strategy into practice in both private and public institutions by ensuring that persons with special educational needs are not denied admission into these institutions under no circumstance. Adequate measures are also to be put in place to guarantee that students with special schooling requirements get equitable treatment through the adoption of the universal design principle (UDL).

Although there has been little research on the implementation Ghana's inclusive education policy as indicated by Komabu-Pomeyie (2020), some factors have been identified to affect the successful implementation of every inclusive education policy. For instance, several researchers identified that factors such as effective school practices, effective teaching practices, positive teacher attitudes toward inclusive education and adequate teacher knowledge of inclusion are among others contributing to making implementation of inclusive education a success (Alhassan, 2014).

## **2.6 Inclusive early childhood education**

Article 24(1) of the UN Convention on the Rights of Persons with Disabilities advocates for inclusive education to be implemented at all levels of the education system. In this regard, the implementation of inclusion at all level of the education system including the early childhood education level: Inclusive early childhood education, is being pursued vigorously in many countries.

Inclusive early childhood education as opined by Ackah-Jnr. (2016) is a useful strategy for creating meaningful and effective educational and social experience for children with disabilities and special education needs aged 0 – 8 years. Inclusive education at the early childhood education level is recognized to have many benefits for the development of children. For instance, Ackah-Jnr. and Udah (2021) maintain that inclusive early childhood education is critical in enhancing learning, socialization and development of children including those with special education needs. the role inclusive early childhood education plays in developing the sense of belongingness and in helping all children to reach their full potential has been underscored by Ackah-Jnr. (2011). Accrding to Ackah-Jnr. (2011), children with inclusive early childhood education experience attain success in a variety of developmentally appropriate activities.

Considering the crucial role early childhood education plays in the development of all children with or without special education needs, some researchers have opined that inclusive education and early childhood early education are inseparable (Nutbrown and Clough, 2006). In the light of this, UNESCO,( 2021) have argued that the early childhood education level is the best stage to begin implementing inclusive education. For Ackah-Jnr. (2011) commencing inclusive education at an early age provides all children with the opportunity to work side by side in an environment that represents their future.

Ghana's commitment to the implementation of inclusive early childhood education has been demonstrated in different ways including the national teacher standards which has suggested that inclusive methods be used in the nation's early childhood settings (Ackah-Jnr. & UDAH, 2021). This acknowledges that in order for inclusion early childhood programs to be successful, teacher practices need to match the diversity of kids and guarantee that every student has equal access to resources (Ackah-Jnr.& UDAH, 2011). According to Ackah-Jnr. and UDAH (2021), teachers in inclusive early childhood classrooms “should plan, teach, and assess their lessons and must be interested in and support the participation and learning of all students” (Ackah-Jnr. & UDAH, 2021). According to Alhassan (2014) the teacher factor and roles are very crucial to a successful inclusion program.

## **2.7 Teacher preparedness for inclusive early childhood education**

Teachers have been recognized as pivotal agents in the implementation of inclusive education. However, as reported by Clemens as cited by Joseph (2015), one of the major concerns and arguments that have been raised against inclusive education is whether teachers are well prepared to play their roles in the implementation process. These roles as identified by Okoye & Ife (2020) and Tyagi (2016) include;

1. The use of a variety of instructional materials in teaching.
2. Modifying the mode of assessment to suit various learners.
3. Sharing students into groups.
4. Recognising students with special needs in the classroom.
5. Sending the identified to a specialist for additional analysis.
6. Embracing kids with impairments.
7. Fostering a good outlook amongst children with disabilities and those without.
8. Arranging the kids in the classroom appropriately so they can feel at ease and take advantage of the interactions.
9. Making suitable adaptation in the curriculum transaction so that children with disability can learn according to their ability.
10. Preparation and/or adaptation of instructional aid to suit various learners.

The ability of educators to work with and support students with extracurricular requirements and disabilities within inclusive classrooms is known as instructor preparation for inclusive education. However, research conducted across the globe has revealed mixed findings regarding teachers' preparedness to implement inclusive education. For instance, Okoye and Ifi (2020) undertook a study to assess lower basic education teachers' preparedness for the adoption of inclusive education in Nigeria and found that lower basic education teachers had psychological and teacher skills preparedness for the adoption of inclusive education but had inadequate physical resources preparedness. Alcosero et al. (2023) did a meta-synthesis of the preparedness of regular teachers in the implementation of inclusive education in the Philippines and found that regular teachers unprepared for students with unique needs in education to be included in their classrooms.

Zulu (2014) assessed the Kwazulu-Natal's Nongoma Circuit's mainstream primary school teachers' readiness to adopt the inclusive education policy, South Africa and found that teachers were not adequately prepared for the implementation of inclusive education. According to this study, more than 79 % of teachers interviewed revealed that they were not trained to provide them the skills, knowledge, and abilities necessary to teach learners with special education needs. Similarly, Naicker (2008) assessed educators' preparedness for inclusive education in Umdoni ward (Scottburgh Circuit, Port Shepstone District) in South Africa and found that majority of the respondents (about 85%) revealed that they lacked the training necessary to give them the information, abilities, and skills necessary to instruct students with special education needs. When Hay et al. (2001) evaluated South African teachers' readiness for inclusive education, they found that most of them felt unprepared and ill-equipped to instruct integrated courses, which they attributed to a lack of time and preparation, large classes, lack of facilities, and lack of teacher experience.

In a study by Gathumbi et al. (2015), it was found that teachers' pedagogical skills and understanding of how to work with kids who have special education needs were generally lacking. This lack of knowledge and unpreparedness of teachers to handle learners with special education needs is attributable to a number of factors including inadequate training in inclusive practices at the level of teacher training or education. For instance, Gyimah, Nketsia & Saloviita (2016) indicated that teachers were not adequately prepared for inclusive education by the course material offered at Ghana's teacher training colleges.

### **2.7.1 Teaching Strategies for Teaching in Inclusive Classrooms**

Teachers employ a variety of strategies in teaching learners in their classrooms. These strategies are usually carefully selected to respond to the needs of students. According to Makoelle and Thwala (2022), the type of learners, the nature of the learning material, and the teacher's execution skills all influence the choosing of a certain teaching technique or strategy. Different researchers have identified various inclusive teaching strategies that promote effective education for all students, including those who require special education services, in mainstream school classrooms. For instance, Flem et al. (2004) identified scaffolding, modelling, contingency management and feedback as important elements that support the effective inclusion of students with special educational needs in mainstream classrooms. Lindsay (2007) identified collaboration and teamwork as essential aspects of inclusive practice.

Winter and O'Raw (2010) state that in order to effectively instruct students with unique learning needs in inclusive classrooms.

1. Ensure effective interactions among learners with mixed abilities in classrooms and ensuring that social events at school include kids with special education needs.
2. Ensure that, by allowing kids to participate in their own evaluation, the accomplishments of every student are acknowledged.
3. Involve the adoption and use of mixed ability teaching approaches including differentiation and making certain that the curriculum is accessible to every learner.
4. Involve using a range of instructional approaches to accommodate varying student skill levels.

Kurth et al. (2015) categorized inclusive teaching strategies for teaching students with severe disabilities under seven themes. These include classroom interactions, teaching and instruction arrangements, the type of support that is provided in general

education settings, the activities that students engage in, their interactions with others, and possibilities for students. Yozgatli (2022) identified some inclusive teaching strategies for teaching in inclusive classrooms. These include collaboration, use of a variety of assessment and instructional tools. According to Yozgatli (2022), teaching in inclusive classrooms should consider;

1. Building a cohesive, orderly, and courteous learning environment in order to foster a favourable learning environment that supports and fosters the holistic training of all learners. This includes the physical arrangement of the classroom, laying out ways for delivering education, social behaviour enhancements, behaviour control processes, and reinforcement strategies to lessen undesirable behaviours.
2. Delivering constructive and encouraging criticism to enhance pupils' behaviour and learning results.

Makoelle and Thwala (2022) also identified some teaching strategies that are often adopted by teachers to support learners in inclusive classrooms. These include collaborative learning, co- or team-teaching, motivation, discipline, the role of assistant teachers, differentiated instruction, reciprocal instruction, scaffolding, multiple intelligences, multi-level instruction, multisensory instruction, and the use of technology to promote inclusion.

Two distinct approaches to improving inclusion in the classroom were recognised by Florian and Black-Hawkins (2011). These consist of the play area and job choice. In order to differentiate learning tasks and meet the individual requirements of kids with special education needs, the classroom teacher must confer with colleagues in learning support. Conversely, the play zone is defined as a section of the classroom where teachers choose activities based on the requirements of each individual student and offer a variety of active play options (Makoelle & Thwala, 2022).

David and Florian (2004) categorized teaching methods for instructing students that require special education. These include strategies that enhance communication and integration, behavioral, emotional, and social development, learning and cognition, and sensory and/or physical development. For children with communication and integration difficulties associated with profound and multiple learning difficulties, the authors suggested the use of intensive interaction and/or a sensory-based approach. The use of procedural facilitators like planning sheets, writing frames, story mapping, and teacher modeling of cognitive strategies are suggested as effective teaching strategies for enhancing cognition and learning.

In developing the behavioral, emotional and social aspects of children, David and Florian (2004) identified several approaches. These include the use of peers as a valuable approach either as part of behavior management (for example peer monitoring) or peer-oriented intervention. Also, the use of approaches that encourage children to regulate their behavior by teaching self-monitoring, self-instruction and self-enforcement skills are recognized as an effective strategy for producing adaptive behavior change. The European Agency for Special education needs and Inclusive Education (EASNIE) (2016) in a review of literature on ‘raising the achievement of all learners in inclusive education’ identified some teaching strategies for diversity in classrooms. Hattie (2009) identified structured instruction, meta-cognitive strategies, formative feedback, peer learning and peer assessment as the most effective strategies for raising achievement. A similar meta-study by Almqvist, Granlund, & Sjöman (2016) revealed that peer tutoring, direct instruction and meta-cognitive strategies have the greatest effects on goal achievement among learners in need of special support.

EASNIE (2009), identified co-operative group teaching, peer tutoring, parental involvement and support, cognitive strategy instruction, memory strategies, review and

practice and behavioral strategies as evidence-based strategies that have proved to be successful in raising achievement and participation. Other strategies included formative assessment and feedback, optimal physical environment and classroom climate.

### **2.7.2 Resource Utilization in Inclusive Education**

The diversity of learning needs in inclusive classrooms requires that instructional resources are carefully selected and effectively utilized to serve the needs of all learners. Instructional resources have been defined variously by several authors. For instance, According to Mubichakani and Koros (2014), instructional resources are teaching and learning tools that are utilised during the learning process to help the reader understand the offered material more vividly, engagingly, and practically. Jeptanui (2011) regards instructional resources as items designed, modified and prepared to assist teaching and learning and to provide data that students use in learning.

The value of resources in putting inclusive education into practice has been underscored in previous studies. For instance, Okongo et al. (2015) intimated that the successful implementation of inclusive education often requires adequate human resource and teaching and learning resources. Ngeru, (2015) contends that instructional resources including equipment and materials are essential in early childhood programs as they suggest the direction and provide the raw materials for children's exploration and learning. According to Ngeru (2015), interaction with well-designed materials and equipment helps to develop children's small muscle coordination, concepts about the world, creativity, social skills and self-awareness.

According to Okongo et al. (2015), instructional resources encompass not only teaching strategies and materials but also the time allotted for instruction as well as the expertise and abilities of educators gained from education and practice. Instructional resources have been classified in different ways. For instance, Okoye & Ifi (2020)

categorized into physical resources and human resources. Jeptanui (2011) classified instructional resources into visual, audio and audio-visual resources.

According to Yusta et al. (2016), visual resources include pictures, diagrams, projectors, teachers themselves, charts, real objects, books and chalkboards. Audio resources include tape recording cassette, radio, compact disc and dramatization while audio-visual resources include television, video recording, motion pictures with soundtracks, slides, films, computer and multimedia. These resources as observed by Ngunjiri et al. (2019) may vary from simple resources such as chalkboards, pictures, textbooks, flash cards, counters and worksheets to complex and expensive resources such as televisions, computers and projectors or slides. Raymond and Christy, (2020) identified some important resources that needed for teaching and learning in an inclusive classroom. These consist of conventional and special education instructors, community involvement, peripatetic services, and support personnel such as braille transcribers and sign language interpreters.

As computers have increasingly become an important part of today's inclusive classrooms, technology has been recognized as an important tool for implementing inclusive education across the globe (Andean et al. 2021). Technologies such as assistive technologies (AT) and adaptive technologies are now being used to provide opportunities for students with special education requirements and learning disabilities must learn like their counter parts in inclusive classrooms. Mull and Sitlington (2003) assert that these technologies can help students with special education needs overcome their academic weaknesses and ensure that they live independently.

Technology can help students with special education needs in a variety of ways in the learning process. For instance, speech recognition technologies can help to eliminate the use of paper and ink for learners whose conditions make it challenging to

write with their hands. Also, learners with challenges in processing visual information may benefit from such technologies. Screen reader applications such as JAWS (job access with speech) and specially built braille keyboards can help visually impaired learners.

Indeed, some studies have identified technology as a barrier to inclusive education (Weber, 2006; Beggs, 2010). Among the issues identified as barriers with regard to technology application in inclusive education are inadequate assistive and adaptive devices and computer systems, inadequate training of teachers in information technology (IT) and insufficient instruction (Weber, 2006; Beggs, 2010). A number of other factors have been identified as challenges to the utilization of instructional resources in inclusive classrooms. Yusta et al. (2016), for instance found that lack of training of teachers in learning disabilities affected their ability to improvise instructional resources to the needs of their learners. Ngeru (2015) asserted that teacher characteristics such as education qualification, teaching experience, gender and age have great influences on the type of instructional resources utilized in the classroom. Inadequacy of instructional resources in schools has also been noted as a key hindrance in their use in classrooms (Ngure et al. 2019). Dnovughe (2012) observed that the location of a school plays a significant role in the use of instructional resources.

### **2.7.3 Curriculum Adaptation and Inclusive Practices**

It has been recognized that learners in an inclusive classroom cannot be handled in the same way as a regular class (Mulinge, 2016). In the light of this, school curricula which were originally designed for mainstream classrooms need to be altered and tailored to satisfy the requirements of inclusive classrooms.

In many countries, the rigidity of school curricula in accommodating the needs of students who require special schooling is a major factor hampering the implementation

of inclusive education. This assertion is supported by Okongo et al. (2015) who identified rigid curriculum among the factors that serve as barriers to introduction of broad education in Kenyan preschools. To run an effective education that is inclusive, it is crucial to adhere to a flexible curriculum and pedagogy (Okoye & Ifi, 2020). Okongo et al. (2015) also stated that curricular modifications that allow students with special needs or disabilities to learn at their own speed are necessary for inclusive learning to be successful.

In highlighting the importance of curriculum adaptation in the teaching and learning process in inclusive classrooms, Tyagi (2016) opined that role of a teacher in an inclusive classroom making suitable adaptation in the curriculum transaction so that children with disability can learn according to their ability. According to Flecha (2015), an inclusive curriculum does not aim to reduce the knowledge that a learner has to acquire; instead, it involves adapting teaching methods and activities to facilitate learning and to move the learner towards higher levels of achievement. Further, as explained by the EASNIE (2016), an inclusive and flexible curriculum provides more equitable opportunities for young people to develop and use the skills and abilities necessary to become an active part of the workforce.

It has been identified that in adapting the curriculum for inclusive education, it is important to;

1. ensure that the curriculum is accessible, flexible and can be adapted as needed to ensure inclusive education.
2. ensure that the curriculum reflects principles of equity and inclusion.
3. integrate positive portrayals of students with disabilities into and/or remove biased content from the curriculum.

### **2.7.3.1 Differentiation of Instruction**

Differentiation is an important way in which school curricula can be adapted to respond to the diversity of learning needs and made accessible to all in inclusive classrooms (Zulu, 2014). Zulu (2014) states that differentiation is the act of altering, expanding, adjusting, and changing instructional strategies, teaching methodologies, assessment techniques, and curricular content while taking into account the aptitudes, interests, and backgrounds of the students.

There are several ways by which the curriculum can be differentiated. These include differentiation at the content, instructional strategies, evaluation, and learning environment levels (Zulu, 2014). Differentiating curriculum content is an important aspect of adapting the curriculum for inclusive education. According to Landsberg (2006) content differentiation involves giving learning support to learners based on their ability and capacity to understand what is taught. In essence, content is stepped down to a level the learners can experience success (Zulu, 2014). Differentiating curriculum environment as described by Lomofsky et al. (2001) entails the removal of all impediments that make physical classroom environment and atmosphere inaccessible and unsafe to ensure the nurturing of personal, cognitive and social development of all learners.

In differentiating teaching methods, teaching methods and strategies are carefully selected to accommodate different learning styles and unique needs while letting students advance at their own speed. Additionally, the requirements and abilities of students with disabilities are examined, and the necessary modifications are then identified (Landsberg, 2006). Differentiating assessment is based on the belief that the needs of all learners cannot be met in the same way in inclusive classrooms. Differentiating assessment therefore means adopting a flexible assessment strategy and plan that can adapt to a variety of learner needs.

There are several models and frameworks which have been developed to implement differentiation in inclusive classrooms. These models include the Tomlinson model, Smets model, Daksford and Jones model, Thousand et al. model, Prast et al. model and the 5-Dimentional model proposed by Roiha and Polso (Roiha and Polso, 2021).

### **2.7.3.2 Development of an Inclusive Curriculum Model**

The success of any education system depends to large extent on the curriculum. In this light, for inclusion to succeed in any classroom, the curriculum must be designed in such a way as to promote success among all students (Hector-Alexander, 2019). There have therefore been some efforts on developing inclusive curricula to fully and adequately meet the dynamics of modern classrooms. An inclusive curriculum can be defined as a curriculum that allows for diversity of content, material, ideas and methods of assessment. A curriculum model involves processes that describe how the curriculum is designed and developed and structured for a specific target population.

An inclusive curriculum design approach, according to Morgan and Houghton (2011), considers students' educational, cultural, and social background and experiences, as well as if they have any physical or sensory impairments and their mental health. It supports the idea of universal design for learning (UDL), which removes needless obstacles from the learning process and takes into account the requirements and skills of all students. Several authors have suggested guidelines considerations to be followed in developing an inclusive curriculum.

Hector-Alexander (2019), for instance enumerated several considerations for developing and inclusive curriculum. These considerations are.

1. Cultural sensitivity is an understanding of the various ways that culture affects education.

2. The ethical and the pedagogical foundation of the objectives, content, goals, and teaching activities. The curriculum should not only incorporate one, but multiple pedagogies according to learner needs.
3. Authentication by a person from the group or groups that the educational materials are intended for. This includes the testing of the learning materials with the target groups during the development phase to ensure authenticity.
4. Creation of flexible tasks and tools for knowledge sharing.

Das and Sarkar (2015) also gave some guidelines for developing an inclusive curriculum for all children. In their view, Das and Sarkar (2015) posits that an inclusive curriculum must be developed by including child-centered pedagogies that responds to the child's psychological development, interests and specific learning needs. Other important considerations include ensuring that all learners have equal access in every possible manner, incorporating required adaptation in the curriculum in terms of content, learning approach, learning aids and evaluation to address and accommodate individualized learning styles and prescribing for use of all available educational / assistive technologies to ensure equal participation of and effective learning in all children specifically for kids that require special education.

Mugambi (2017) gave the features of an inclusive curriculum. According to the author, inclusive curriculum should have the following features.

1. Continuous and intimately related to social inclusion.
2. Ensures quality and equity by adapting to the diversity of learners and long-term sustainability of education for all.
3. Addresses and incorporates national, local and learner diversities.
4. Reflects the variety of teaching philosophies and educational resources.

5. Incorporates nondiscrimination principles to promote tolerance and an appreciation of diversity.
6. Incorporates information pertinent to students' needs and future.
7. Offers educational resources that are representative of a range of perspectives.
8. Offers a multitude of learning activities and a broad range of learning opportunities.
9. Offers educational exercises that encourage communication, teamwork, and mutual reflection among students.
10. Offers evaluation assignments devoid of examples based on gender and culture.
11. Offers evaluation assignments that are made to consider the various values, objectives, experiences, and viewpoints of students.

#### **2.7.4 Physical and Environmental Accommodations for Inclusivity**

The physical environment plays a critical role in the learning process in inclusive classrooms. For instance, Ryan and Bauman (as cited in Hsiao et al., 2019) observed learners with disabilities exhibited less educational achievement than their counterparts in school environments that are inaccessible and unaccommodating suit the requirements of students who require special education. This is supported by Mulinge (2016) who contend that the environment has a massive influence on the experiences of learners and their level of disability. According to Mulinge (2016) inaccessible environments generate disability by constructing barriers to inclusion and participation.

Some of the barriers that make school environments inaccessible to learners with special education needs include lack of ramps and elevators for wheelchair users, lack of sign language interpreters for deaf children and lack of reading software for visually impaired persons are a big challenge to inclusion (Mulinge, 2016). According to Mulinge (2016) other barriers such as school buildings that are characterized by narrow doorways,

lack of pavements and rumps make it difficult for learners with physical and visual impairments to feel safe.

To ensure that all learners have equal access to all the resources, promote the learning and increase the achievement of all learners in the inclusive classroom, the environment needs to be modified to accommodate all students, but especially those with impairments and special education requirements. Hsaio et al., (2019) found that the achievement of learners with disabilities relates directly to how well accommodations meet their specific needs and assist them in fulfilling the expectations of their academic activities. For instance, classrooms can be modified for hearing and visually impaired by making arrangements for better lighting and noise reduction.

According to the World Health Organization (WHO) (2011), modifications of the environment can be made through policy changes founded on technological advancement. The development of tools such as assistive devices, adaptive devices and universal design for learning has contributed immensely in making the classroom environment accessible to all learners.

#### **2.7.4.1 Use of Assistive Technologies in Modifying the Learning Environment**

Erdem, (2017) define “assistive technologies as the equipment, devices, apparatus, services, systems, processes and modifications made to the environment for use by disabled and/or elderly people to secure their full, active and easy participation in society.” Similarly, Reed & Bowser (2005) describes assistive technologies as anything that is capable of compensating for the lack of certain abilities in learners. Three types of assistive technologies have been distinguished. These are low-tech, medium-tech and high-tech devices (Young, 2019; WHO, 2009). Low-tech devices are inexpensive,

widely available, and easy to use. Examples include crutches, pen or pencil grip, hearing aids, glasses, line guides, white canes, wheelchairs, a slate, a stylus, and paper for handwriting. Mid-tech devices come with moderate costs. They include audio recorders, concept maps, portable note takers, MP3 players, calculators, and pentop computers. The high-tech devices are expensive, complex and multi-functional tools such as braille, text-to-speech software, speech-to-text software, word prediction software and graphic organizer software (Young, 2019; WHO, 2009).

Assistive technologies are essential tools in the classroom that allow students to access instruction, engage in active and autonomous learning, communicate with their peers, and take charge of their own education (Winter & O'Raw, 2010). According to various authors as cited by Erdem (2017), the use of assistive technologies is beneficial in improving the performance of students by offering assistance, such as customising curriculum activities and content to meet their requirements in a setting with few limitations. Some studies have shown that assistive technologies have been successfully used in inclusive classrooms in some developing countries. For instance, Cullen (2006) cited an example of a successful use of assistive technologies in the Kilimani Primary School in Kenya and the Mwereni School in Tanzania. Also, Godisa (2009) successfully manufactured and implemented the use of hearing aids that use solar power in some schools in Botswana.

Even while assistive technologies are crucial in adapting the classroom setting to accommodate students with disabilities, research has demonstrated that their use in inclusive classrooms is still limited in many developing countries (Young, 2019; Grönlund et al., 2010). This can be attributed to a number of factors. These include poor knowledge and proficiency of teachers in the use of assistive devices, lack of student access to adequate technology and inadequate funding (Young, 2019). Grönlund et al.

(2010) also observed that in developing countries, assistive technologies are not largely used at all in ordinary schools because of, one, the fact that most developing countries are yet to fully embrace inclusive education and two, technologies in general are seldom used in the schools. Other factors that have been found to influence the use of assistive devices are legislation, attitude and infrastructure issues (Grönlund et al., 2010). Yadavalli (2022) provides a catalogue of several other barriers to the use of assistive technologies in inclusive classrooms.

Previous studies have investigated the availability and use of assistive technologies in developing countries. For instance, Alimi et al. (2021) conducted a study on availability and utilization of assistive technology for learning among students with special education needs in Ilorin, Kwara State, Nigeria. Hundred respondents were selected for the study a multi-phase sampling method that incorporates purposeful and basic random sampling. The findings from this study showed that assistive devices are available for the assimilation of students with special education needs in the state. Zakaria et al. (2018) investigated special education teachers' use of assistive technology in educating students with special education needs in the Northern region of Ghana. The purpose of the study was to examine how special education teachers use assistive technology in educating persons with special education needs in some selected schools in the Northern Region of Ghana. For the study's data collection, a sample of 55 teachers was chosen from the five special schools/institutions. According to the results, teachers concurred that using assistive technology to teach students with special education needs is highly beneficial. Additionally, it was demonstrated that teachers had numerous difficulties when utilising assistive technology.

In another study, Nyavori and Amaniampong (2020) investigated factors that influence the choice of assistive technology by students with visual impairment at Ghana

National Inclusive Basic Schools. The study specifically looked at available assistive technologies, the preference of a particular assistive technology to others and challenges students faced in the use of assistive technology. The findings of the study revealed that students' choice of assistive technologies hinged on the availability of technology, parents' ability to buy such technology, knowledge from rehabilitation centres and limited knowledge of students and teachers in operating them. While these studies provide valuable insights into the use of assistive technologies by learners in the primary and secondary schools, very little is known about their availability and use in early childhood education centers.

#### **2.7.4.2 Modifying the Learning Environment through Classroom Design**

Classroom design is recognized as an important and effective strategy for ensuring a good learning environment that accommodates the needs of all learners particularly those with special education needs and enhances their achievement. According to Barrett et al. (2015), there are three design principles need to be considered in designing the classroom environment. These are the principles of naturalness, individualization and stimulation. The naturalness principle provides for classroom environments to be designed in such a way that all learners experience physical comfort by utilizing environmental factors such as light, sound, temperature and air quality. By modifying various aspects of the classroom such as windows, doors, learning zone layouts and desk arrangement, these factors can effectively be regulated to provide learning environments that enhances achievement.

The individualisation concept pertains to how successfully a classroom accommodates the demands of a certain set of children, as stated by Barrett et al. (2015). It is focused on factors like connection, flexibility, and ownership. According to the

writers, ownership is a gauge of how recognisable and customised the classroom is. A room's ability to adapt to the needs of a certain age group and evolving pedagogy is measured by its flexibility. The degree to which students are able to connect with the rest of the school is measured by connection. According to Barrett et al. (2015), the stimulation principle has to do with how lively and engaging the classroom is. It has two parameters: colour and complexity. All of the colour components in the classroom are embodied in the use of colour here. The degree to which the many components in the classroom work together to produce either a visually ordered and coherent space or a chaotic and unpredictable one is known as complexity.

Previous studies have highlighted the impacts of the key parameters associated with the three design principles on pupils' academic achievement (Barrett et al. 2015). For instance, a study by Cruz-Garza et al. (2022) investigated the neural dynamics linked to brief exposure to several virtual classroom layouts with varying window positions and room sizes. The Stroop, Digit Span, Benton, Visual Memory, and Arithmetic tests were among the five quick cognitive exercises that participants completed in each design condition. There is proof that the placement of windows and the size of the space have an impact on the aspects of brain activity during cognitive tasks. Heschong Mahone Group (as cited in Barrett et al., 2015) also found that children with most day lighting conditions. The largest windows advanced almost 20% more quickly in reading and maths. In a similar vein, Wargocki et al. (2007) discovered that when classroom temperature was significantly lowered and ventilation rates were raised, 10–12-year-olds' scores on language and numeracy tests improved. Further, McMillan (n.d) observed that intimate and personalized spaces are better for absorbing, memorizing and recalling information.

According to Ulrich (2004), classrooms and halls that showcase the results of students' intellectual endeavours and representations of academic concepts, projects, exhibits, and constructions also encourage increased participation and involvement in the educational process. Studies conducted by Tanner (2009) and Zeisel et al. (2003) showed that clearly marked pathways to activity areas improve utilization of space and performance metrics. Kuller et al. (2009) showed that classroom color influences both emotions and physiology of learners which can cause mood swings and affect performance.

## **2.8 Critique of Literature Review**

The literature review provides a broad overview of inclusive education and teacher preparedness, effectively using the Social Model of Disability and Social Cognitive Theory as its foundational frameworks. This approach is strong because it aligns with key principles of inclusion, focusing on removing social barriers and building teacher confidence. However, the review is more of a descriptive summary than a critical analysis, which is a major weakness. It doesn't connect these theories to the specific realities of Ghanaian classrooms.

The review presents the Social Model of Disability without critically examining its limitations. It overlooks how physical impairments can directly affect learning, particularly for students with severe disabilities. A more balanced critique would have integrated the medical model to provide a more holistic understanding.

Similarly, the discussion of Social Cognitive Theory is too general. While it mentions key concepts like modeling and self-efficacy, it fails to link them to practical teacher development strategies in Ghana, such as professional development workshops

or mentoring programs. This makes the discussion abstract and disconnected from the study's setting.

The review comprehensively outlines Ghana's education policies, including the 2019 Kindergarten curriculum, the FCUBE initiative, and the Inclusive Education Policy. While this shows a good grasp of policy, the analysis falls short by not evaluating the effectiveness of these policies in practice. There is no assessment of whether the curriculum is achieving its inclusion goals, especially in rural areas with limited resources.

The review is "policy-heavy but practice-light," lacking empirical evidence on the actual challenges teachers face when trying to implement these policies. It cites international research from countries like South Africa and Nigeria but doesn't provide enough Ghana-specific data to contextualize these findings. For instance, it mentions the inadequacy of teacher training curricula in Ghana but doesn't explore this issue in detail.

The review lists an extensive range of teaching strategies, such as scaffolding and cooperative learning. While this demonstrates the researcher's knowledge, the discussion is largely descriptive and fails to evaluate the practicality of these strategies in Ghanaian classrooms, which often have large class sizes and limited resources. Without this critical assessment, the section is a mere catalog of methods rather than an analysis of effective local practices.

Similarly, the sections on resource utilization and curriculum adaptation are rich in global insights but don't adequately reflect the challenges faced in Ghana, particularly in rural districts like Nanton. The review doesn't critically analyze whether Ghanaian schools have the necessary resources or if teachers are trained to improvise effectively.

The review concludes by identifying literature gaps but does so in a broad, unprioritized manner. More importantly, it doesn't clearly explain how the current study

will specifically address these gaps. Overall, while the review is well-structured and comprehensive, it needs to be more analytical, critically engaging with Ghanaian realities, and making stronger connections between global theories and local practice.

## **2.9 Summary and Knowledge Gaps in the Literature**

In this chapter, relevant literature on the key themes of the study was reviewed. The use of instructional resources in teaching students with special education needs, curricular adjustments and changes for teaching students with special education requirements, and teaching practices for managing students with special education needs were these major issues, environmental and physical modifications and support systems for teachers in enhancing their skills and knowledge to teach learners with special education needs.

Although the review indicates that numerous studies have been conducted on teachers' readiness for inclusive education in various nations and Ghanaian districts, the majority of these studies have primarily concentrated on teachers' attitudes towards instructing students with special education needs and their familiarity with inclusive practices. Studies on instructional resource utilization, curriculum modification, environment and physical modifications and teacher support systems have not been extensively studied in Ghana, particularly in the Nanton district.

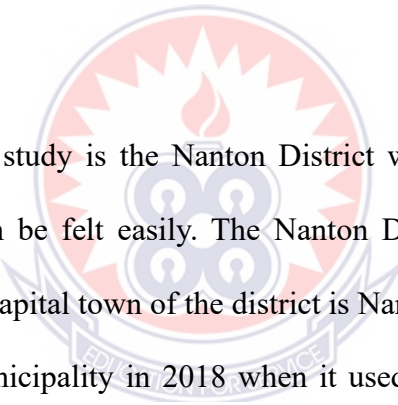
## **CHAPTER THREE**

### **RESEARCH APPROACH METHODS**

#### **3.0 Overview**

The methodology is presented in this chapter adopted in carrying the study. It discusses the materials, methods and procedures followed in realizing the objectives of the study. The philosophical stance, research design, research methods, study population, sampling and sample size, data collection instruments and the procedure for data collection are presented. Also, the validity and reliability of data research instruments and data analysis procedure are discussed.

#### **3.1 The Study Area**



The area under study is the Nanton District wherein a recent proliferation of preschool activities can be felt easily. The Nanton District is found in the Northern Region of Ghana. The capital town of the district is Nanton. The District was carved out from the Savelugu Municipality in 2018 when it used to be called Savelugu- Nanton Municipality. The area is largely dominated by Dagombas. The main occupation of the people is farming. The district is located in the interior (Guinea) Savanna woods, which has the potential to support large-scale cattle husbandry as well as the production of staple crops like rice, groundnuts, yam, cassava, maize, cowpea, and sorghum. The district has Eighty-Four (84) communities or villages. The paramount chief of the area resides in Nanton whiles the smaller villages have their sub-chiefs. The district shares boundaries with Savelugu to the North, Karaga to the East and Tamale to the South. It has a landmass of 1, 790.70 sq.km (District Assembly, Planning Unit).

The district has a total population of about 64,044 according to the population and housing census and with a female dominance of 50.3% against 49.7 % of males (GSS, 2013). The district has both public and private schools. There are Forty-six (46) public Kindergarten and primary schools, and nineteen Junior High Schools (JHS). The district currently has started a community day Senior High School (SHS) which is yet to be absorbed by government. There are ten (10) private schools in the district (Kindergarten and JHS). Few Students with various forms of special educational needs could barely be seen at the JHS level in the district due to a high drop-out rate of such student at the primary level. This situation can be traced down to teacher inadequacies in handling learners with special education needs at the Kindergarten level in the District (Nanton District Education Oversight Committee (DEOC) Monitoring Report 2023). This situation could deny hundreds of children in the district their fundamental right to education.



### **3.2 Research Paradigm**

The pragmatist research paradigm was adopted for this study. Pragmatism is a paradigm of educational research that emphasizes the importance of practicality, usefulness, and relevance of research findings to real-world situations. It asserts that knowledge is best understood in terms of its practical consequences and that the meaning of any concept is derived from its practical application. It allows for flexibility in combining both quantitative and qualitative methods to address the complex and practical aspects of the research questions.

According to Creswell and Creswell (2018) studies underpinned by the pragmatist philosophical stance emphasize the research problem and question and utilize

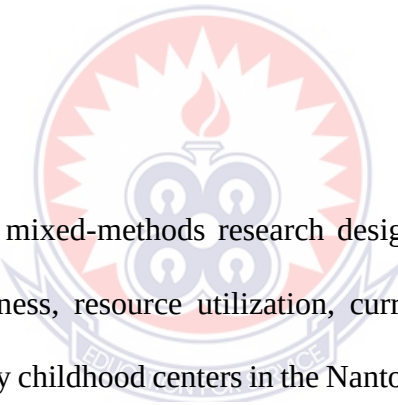
all approaches available to understand the problem. Pragmatism lies in between positivism and interpretivism philosophies and is concerned with applications and finding the right solutions to problems or “what works” (Lodico et al., 2006). According to Creswell (2013) individuals holding an interpretive framework based on pragmatism focus on the outcomes of the research; the actions, situations, and consequences of inquiry, rather than antecedent conditions focused on in postpositivism.

Researchers who adopt the pragmatist worldview do not focus on one particular research method but employ multiple methods of data collection to best answer the research question. They focus on the practical implications of the research and emphasize the importance of conducting research that best addresses the research problem (Creswell, 2013). They achieve these through mixing methods to arrive at workable solutions to investigating phenomena. Pragmatists therefore adopt the mixed methods approach in seeking answers to their research questions. This research paradigm was adopted mainly because of the multidimensional nature of the study. The focus of the study was on teacher preparedness in terms of resource utilization, curriculum adaptation, physical accommodations, and support systems for learners with special education needs in early childhood centers. These issues required the researcher to employ a wide range of data collection methods and approaches in understanding them. Based on this, the study employed both qualitative and quantitative data collection methods to answer the research questions.

Again, the researcher was mainly interested in the real world application of the results of the study in terms of influencing policy changes and classrooms practice, so the pragmatist research paradigm was considered appropriate for the study. Further, the researcher adopted a practical approach to understanding the various aspects of the study.

This is why the pragmatist research paradigm was considered appropriate for the study. The adoption of this research paradigm allowed the researcher to better appreciate that the nature of teacher preparedness, resource utilization, curriculum adaptation, physical accommodations, and support systems varies across diverse contexts within the district. It provided the researcher valuable empirical insights into the state of teacher-preparedness and resource utilization. The adoption of the pragmatic research paradigm helped the researcher to delve deeper into the lived experiences and perceptions of teachers and learners with respect to inclusive practices in their classrooms. Finally, the adoption of the pragmatist research paradigm helped in generating knowledge that was not only academically rigorous but practically relevant.

### **3.3 Research Design**

The logo of the University of Education, Winneba, is a circular emblem. It features a central torch with a flame, set against a background of a sunburst or starburst pattern. The emblem is surrounded by a border containing the university's name in both English and Twi.

The convergent mixed-methods research design was chosen for this study-to-study teacher preparedness, resource utilization, curriculum adaptation and physical accommodations in early childhood centers in the Nanton District. The convergent mixed methods design is a form of mixed methods design in which the researcher converges or merges quantitative and qualitative data in order to provide a comprehensive analysis of the research problem (Creswell & Creswell, 2018). As described by Creswell & Creswell (2018), it involves the collection of both quantitative and qualitative data simultaneously and then incorporating the data into the assessment of the overall findings. That is, in this design, triangulation of the two data types is accomplished to answer the research questions (Lodico et al., 2006). Where contradictions or in-congruent findings arise, they are explained or further probed (Creswell and Creswell, 2018).

The triangulation of both data types helps to give a more thorough overview of the problem studied and enhance credibility of the results (Lodico et al., 2006). This assertion is supported by Bergman (as cited in Dawadi et al., 2021) who posited that data triangulation in a mixed-methods study is generally accepted as a strategy for validating results obtained with individual methods. Further, data triangulation leads to a well-validated conclusion and also promotes the credibility of inferences obtained from one approach. The convergent mixed-methods research design adopted in this study involved the simultaneous collection of quantitative and qualitative data. The purpose was to gain a comprehensive and complementary understanding of the complex phenomena associated with inclusive education. In the quantitative strand, structured surveys and assessments were employed to quantify key variables such as teacher knowledge, resource utilization, and the effectiveness of support systems. This approach allowed for the generation of information in numbers that may be examined statistically to find trends, patterns, and connections.

In order to document the lived experiences, viewpoints, and contextual subtleties of educators and other stakeholders engaged in inclusive education, the qualitative strand concurrently employed focus groups, in-depth interviews, and classroom observations. This qualitative exploration provided a deeper understanding of the complexities and challenges faced in the implementation of inclusive practices. During the analysis phase, the quantitative and qualitative findings were integrated and compared. This convergence aimed to identify areas of agreement or divergence, allowing for a more nuanced and robust interpretation of the research questions.

Triangulation was employed to validate and strengthen the overall conclusions. The convergent mixed-methods design was particularly beneficial in this study as it recognizes the need for both breadth and depth in understanding the multifaceted aspects

of inclusive education. By bringing together quantitative measures and qualitative insights, the research aimed to provide a comprehensive foundation for informed decision-making, policy development, and practical enhancements in early childhood education in the Nanton District.

### 3.4 Population

Population refers to the aggregation of study subjects on which the researcher will like to make generalizations. In this study, the population consisted of Kindergarten teachers, Head teachers and selected district office staff in the district. The total population of the study was one hundred and Ninety two (192). This consisted of 100 Kindergarten teachers and 46 Kindergarten head teachers and 46 education officers.

### 3.5 Sample size

The sample size for the study was determined using the Yamane (1967) simplified formula for proportions as contained in Israel (2009) equation 1. The sample sizes used for the study comprised of 80 KG teachers and 41 KG headteachers and 8 District education officers giving us a sample of 129.

$$n = \frac{N}{1 + Ne^2} \dots\dots\dots \text{Equation 1}$$

Where:

n is the sample size; N is the population size; e is the margin of error

### 3.6 Sampling Techniques

The purposive and simple random sampling techniques were employed in this study. The purposive sampling technique was adopted to select 8 district education officers for the study. As indicated by Kumekpor (2002), purposive sampling involves intentional selection of particular units of the population of interest based on certain

peculiar qualities which are of interest to the researcher and are not randomly distributed in the entire population but are typically of some section of the population. These were selected mainly because they possessed the vital information required to explain the research problem. The technique enabled the researcher to select only those who were knowledgeable on the topic under study and could provide useful information.

The simple random sampling technique was employed to select 41 headteachers and 80 KG teachers for the study. This was done using the balloting technique. The balloting technique involved writing the names of all KG teachers and head teachers on pieces of paper and putting them in two separate containers where they were thoroughly mixed. Forty-one 41 head teachers were then drawn from the head teachers container in succession without replacement. The same procedure was followed in drawing 80 KG teachers from the teachers' container. Simple random sampling was employed because of its capability to reduce biasness in research by providing every subject equal chance of being included in the study sample (Thomas, 2023). It also adopted because it made it possible for the findings of the study to be generalized to the entire study population. Moreso, the simple random sampling technique is easy to implement especially when paired with Yamane's formula. It avoids complex clustering making it ideal for researchers with limited resources or smaller studies.

### **3.7 Data collection Instruments**

The study employed closed ended questionnaires, observation checklist and structured interviews in the collection of data. The choice of these instruments was guided by the pragmatist research paradigm and research design adopted for the study.

### **3.7.1 Questionnaires**

Questionnaires were used in this study primarily because they are considered one of the most efficient and effective instruments for collecting quantitative and qualitative data from large respondents in a relatively short period (Marshall, 2005). They were also considered as less expensive and laborious to administer and to analyze the responses. The questionnaires were principally administered to KG teachers. A five-point Likert-scale ranging from 5 (strongly agree) to 1 (strongly disagree) was adopted in the questionnaires. The questionnaires were principally organized into four sections; Sections A, B, C, D in accordance with the research objectives. Each of the sections contained 12 multi-item statements carefully crafted to achieve each of the objectives. There was a total of 48 statements. The questionnaires were designed in a way that ensured the confidentiality and anonymity of the respondents. The respondents provided responses to the questions without disclosing their identity.

### **3.7.2 Observation**

The observations were conducted by the researcher as a non-participant observer using an observation check-list which contained 25 items based on the four variable areas. The observations were used as confirmatory tools to validate the responses given in the questionnaires. The items in the observation check list covered the teaching strategies used, the type of instructional resources used, physical classroom modifications and curriculum modifications in classrooms to facilitate the effective learning of learners with special education needs. Observation was used because it was important for the researcher to witness firsthand how teachers carried out their activities and practices in

the natural classroom environment. The use of this instrument provided the researcher an opportunity to capture aspects of the study which could not be captured in the other instruments being used.

The design of the observation protocol helped to limit subjectivity and variability in the data collected.

### **3.7.3 Interviews**

The interviews conducted were in the form of structured interviews which took the form of face to face. This covered head teachers and education officers. The interviews were conducted using an interview protocol developed by the researcher in consultation with experts. The interview protocol consisted of questions covering knowledge of teaching strategies used by teachers, instructional materials used, the curriculum modifications carried out by teachers, physical classroom modifications by teacher to teach learners with special education needs.

## **3.8 Data collection procedure**

The data were collected over a period of four weeks: from the 5th of September 2023 to 5th October 2023.

### **3.8.1 Observation**

During the first week, the observations were conducted in 15 randomly selected schools to get first-hand information about the preparedness of KG teacher for teaching

learners with SEN. Before carrying out the observations, headteachers and classroom teachers were officially informed and permission duly sought from the district director of education. It took about one hour for each observation session to complete. The observation mainly considered lesson delivery, play activities and classroom environment. Lessons were observed by first seeking the consent of the head teacher and the classroom teacher. The researcher took a seat at the back of the class before the start of each lesson to ensure that there were minimum distractions in the classroom after the lessons were started. In each observation session, the researcher assumed the role of a passive participant which allowed him to take note of all the strategies and practices the teachers adopted to meet the needs of all learners in their classroom. One of the key challenges encountered was distractions in the lessons and change in behavior of study subject because of the presence of the researcher. This challenge was managed by the researcher by being present in the classroom before the start of the lesson to minimize disruptions and intrusion. The researcher also created familiarity with the class through a series of visits to the school before the observations.

### **3.8.2 Questionnaires**

The questionnaires were self-administered by the teachers, headteachers and education officers. This was done after carefully explaining to the participants the rationale of the study and assuring them of the confidentiality of their responses. Participants were given the questionnaires to complete while the researcher went round the schools familiarizing himself with the environment and conducting the observations. Each participant was given a period of two weeks to complete the questionnaires. During this period, the researcher was in constant contact with the participants to give

clarifications when the need arises. The major challenge which was encountered with respect to the questionnaires included the unwillingness of the respondents to complete and return the questionnaires to the researcher. This helped to improve the return rate of the questionnaires

### **3.8.3 Interviews**

After the administration of the questionnaires, some education officers were selected for follow-up interviews. Before each interview session, the interviewee was consulted and a convenient time agreed upon for the interview. Each interview session took an average of 45 minutes to complete. Each interview was recorded with the consent of the interviewee and later transcribed. To minimize distractions during the interview, a convenient and conducive place was chosen and used for the interview. During the interview, the researcher took his time to carefully read out the questions in a manner that it was easy for the interviewee to understand them. Also, enough time was allowed for the interviewee to think through the questions, seek for clarifications and provide appropriate answers. The inclusion criteria considered for the interview were years of teaching experience. Officers who have taught for ten years and above were included in the study. In addition, willingness to participate in the study was another criterial considered. Officers who were ready to provide their consent to participate in the study and ready to share their experiences, views and challenges regarding teaching learners with special needs in early childhood centers were included. Teaching role was another inclusion criterial considered. Officers who were engaged in the day to day supervisory role of teachers in schools were included in the study. The key challenge faced in using this instrument was the reluctance of the interviewees to respond to the questions. This

challenge was managed by establishing good rapport with the interviewees and establishing confidentiality at the beginning of each interview session.

### **3.9 Validity of the Data Collection Instruments**

The degree to which a research instrument measures what it is intended to measure is its validity. Validity, according to Mugenda and Mugenda (1999), is the precision and significance of conclusions drawn from study findings. It is the extent to which findings derived from data analysis accurately reflect the study's variables. Construct validity and content validity were used to ensure the validity of the study tools. The degree to which each instrument's items accurately represented the particular topic addressed and the study's goals was known as content validity. On the other hand, construct validity relates to the degree to which a test or instrument accurately reflects the theoretical traits, attributes or concepts it is intended to measure.

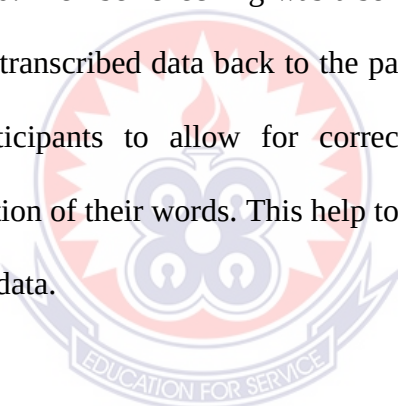
#### **3.9.1 Validity of the Questionnaires**

The researcher employed the following strategies to ensure the questionnaires' content validity: To ascertain whether the instrument's items accurately reflected the variables being studied, the researcher asked research specialists to examine the items. This resulted in some modifications and removal of some items in the instruments.

Pilot testing of the instruments was done at Savelugu to establish both content and construct validity of the instruments. The pilot testing also provided an opportunity to assess how long the study took to identify potential concerns with participant fatigue.

### **3.9.2 Validity of the Interviews**

The validity of the interviews was established through several methods as suggested by Coleman (2021). One of these was audio recording. The researcher recorded each interview session with the consent of the interviewees using his smartphone which was later played and transcribed. The use of this method allowed for the data to be scrutinized and transcribed by independent researchers for comparison (Grove & Gray 2018). Data triangulation was another method of validating the interview data through cross checking of responses using different sources. Multiple participants were interviewed ( Teachers, Headteachers and District Officer) and the responses obtained were compared. Member checking was also done by the researcher. Here the researcher returned the transcribed data back to the participants and read or re-echoed the comments of Participants to allow for corrections and confirmation of the interviewer's interpretation of their words. This help to assess the accuracy, authenticity and resonance with the data.



### **3.9.3 Validity of the Observations**

The validity of the observation protocol was established using video recording and member checking as described by DeMonbrun et al., (2015). The video recording allowed the researcher to go back and reexamine and comprehensively analyze all that was observed in the classroom. It also allowed for verification by both the researcher and the research subjects. The use of member checking allowed the researcher to confirm the correctness of the observations and the interpretations of the observations from the research subjects.

### 3.10 Reliability of the Instruments

#### 3.10.1 Reliability of the Questionnaires

The questionnaires were pilot-tested in the Savelugu district to establish the reliability of the instrument. This District was selected because it has similar characteristics with the actual study sample. Cronbach Alpha coefficient was adopted and calculated for internal consistency using equation 2. Since the instrument contained five different scale items, the Cronbach Alpha coefficient was calculated for each scale item. The Cronbach Alpha coefficient is used to measure the internal consistency of a set of dichotomous or scale questions in a survey. It indicates how well the Likert-scale items vary together as a group. The coefficient takes values between 0 and 1 with values above 0.70 considered acceptable.

$$\alpha = \frac{(K)}{(K-1)} \frac{Sy^2 - \sum Si^2}{Sy^2} \dots\dots\dots \text{Equation 2}$$

Where:

$\alpha$  is the Cronbach Alpha; K is the number of items in the scale; Si is the sum of item scores for each item; Sy is the sum of the total scores for all items.

The calculated Cronbach Alpha coefficients for each of the different scale items which were based on the study's objectives are given in Table 1.

**Table 3.1: Calculated Cronbach Alpha coefficients for the different scales in the instrument (N=47)**

| Objectives  | Number of items | Cronbach Alpha Coefficient | Classification |
|-------------|-----------------|----------------------------|----------------|
| Objective 1 | 12              | 0.90                       | Excellent      |
| Objective 2 | 12              | 0.88                       | Good           |
| Objective 3 | 12              | 0.91                       | Excellent      |
| Objective 4 | 12              | 0.94                       | Excellent      |

N is the number of respondents

Based on the calculated Cronbach Alpha coefficients in Table 1, it could be stated that the research instrument used in this study had an almost excellent internal consistency.

### **3.10.2 Reliability of the Interviews**

The reliability of the interviews was established through inter-coder reliability (Coleman, 2021). The interview protocol was given to an expert to examine the coding and the themes and determine the consistency of responses that would be generated from them. Also, another person was involved to independently analyze the data to ensure that responses were appropriately coded and placed under an appropriate theme.

### **3.10.3 Reliability of Observations**

To ensure the reliability of the observations, the researcher carried out repeated observations in each school and classroom as suggested by DeMonbrun et al. (2015). This allowed for the researcher to examine the consistency of the observations made and where necessary, make modifications and corrections.

### **3.11 Data Analysis**

Data analysis is a mechanism for reducing and organizing data to produce findings that require interpretation by the researcher (Burns & Groove, 2003). The quantitative data collected were presented and analyzed in the IBM statistical product and service solution (IBM SPSS v.26). Descriptive statistics such as frequencies and percentages were determined and results presented in tables. The qualitative data were analyzed by transcribing the responses from the interviews and using thematic analysis.

The researcher first familiarized himself with the transcribed data by reading through it to get deeper understanding. This was followed by assigning codes to important segment of the data. The researcher then moved to organize the themes into related codes. Theme checking against the data and finalizing the themes by describing and naming them was done by the researcher. The final step was report writing where the findings were presented in narratives and quotes. Data from the observation checklist was also analyzed thematically using the steps outlined above.

### **3.12.Trustworthiness of the Qualitative data**

**Dependability:** The research ensured dependability by being consistent and systematic throughout data collection and analysis processes. For interviews I used structured interviews guide and conducted all interviews under similar conditions. For observation, the researcher used standardize observation checklist and took detailed field notes .

**Credibility:** the researcher had a debriefing session with peers to establish credibility of the findings. With peer debriefing, the researcher had two separate meetings with colleague Master of Philosophy Students to review and assess the interview audio and observation recordings, transcripts , analysis and findings. In the first meeting, the team reviewed the interview audio recordings and transcripts. The second meeting looked at analysis of the responses as well as the findings. In addition to the peer review debriefing , the researcher also used member checking to ensure credibility of the findings. With this approach the researcher returned the transcribed and analyzed data to the participants for them to check for accuracy and resonance with their experience.

**Transferability:** Transferability was ensured by the researcher through detailed descriptions of the context of the research setting which is the Nanton District, the

participants and the processes involved so that other can assess to applicability to their own situations. The researcher again employed purposive sampling to pick participants who are information rich and relevant to the phenomenon being studied

**Confirmability:** In ensuring confirmability, the research gave transcribed interview and observation findings and analysis to a neutral person to confirm that the findings and analysis correspond with the responses given by the participants and that, it has not been influenced by the researcher biasness

### 3.13 Ethical Considerations

The following ethical considerations were strictly followed in the conduct of the study;

1. **Avoid plagiarizing.** The works of other researchers and authors used in study were duly cited and acknowledged both in-text and in references.
2. **Informed consent.** Letters of introduction were obtained and given to the head teachers of the selected schools before the study started. This was done to uphold the principle of informed consent in social research. The goal of the study was expressly mentioned in these letters to the respondents and the administrators of the schools.
3. **Confidentiality guaranteed.** Respondents were given the assurance that their identities will be kept secret. In view of this, pseudonyms were used instead of the participants real names. The interviews were conducted under strict confidentiality.
4. **Positionality.** As an Early childhood Coordinator in the Nanton District, I am deeply involved in the oversight responsibility of routine monitoring and support of early childhood education programs in the district including teacher development and inclusive practices . My daily interactions with teachers have given me the first hand insight into the challenges they faced in addressing the needs of learners with special

needs. This insider perspective positioned me uniquely to understand the context of this study, but this also presents me with the risk of potential bias due to my prior knowledge and professional background . I recognized that participants may respond differently due to my authority role which I took steps to address by emphasizing on confidentiality, voluntary participation, and creating a non-judgmental space for interviews. To further mitigate the potential bias mentioned, I maintained a fair and balanced mindset by continuously examining how my assumptions and experiences shaped my understanding. I also engaged in member checking and peer debriefing to ensure my interpretations accurately reflect participants views.



## CHAPTER FOUR

### RESULTS DISCUSSION

#### 4.0 Overview

This chapter presents the results and a discussion of the results of this study. First, the results are presented and then a discussion of the results is made based on evidence and similar findings from literature. The chapter is made up of six sections. The first section presents the results of demographic characteristics of the respondents and the subsequent sections presents results on the study's objectives in order from one to five.

#### 4.1 Demographic Characteristics of the Respondents

##### 4.1.1 Sex

As shown in Table 4.1, out of the total number of 80 KG teachers who took part in the study, 49 (constituting 61.5%) were females while 31 (constituting 38.5%) were males. With respect to the head teachers (N=41) who responded to the questionnaires, 78% were males while 22% were females. Similarly, only 25% of the education officers (N=8) (comprising of four School Improvement Support Officers (SISOs), two training officers, the Deputy Director in-charge of supervision and the special education officer) were females while 75% were males

**Table 4.1: Sex distribution of the respondents**

| Gender | Teachers  |      | Head teachers |     | Education officers |     |
|--------|-----------|------|---------------|-----|--------------------|-----|
|        | Frequency | %    | Frequency     | %   | Frequency          | %   |
| Male   | 31        | 38.5 | 32            | 78  | 6                  | 75  |
| Female | 49        | 61.5 | 9             | 22  | 2                  | 25  |
| Total  | 80        | 100  | 41            | 100 | 8                  | 100 |

**Source:** Field Survey, 2024

This result indicates that there are more women in teaching roles at the early childhood centers in the Nanton district than men. On the contrary, few females are in administrative and management roles compared to males. This observation is consistent

with the generally held view that women are less represented at administrative and management roles in many sectors of the economy including education. This view is shared by Okongo et al. (2015) also observed that there were more females at the lower level among the teachers than at the leadership and management level in education service delivery. Owino (2019) also remarked that female teachers dominate at lower grades than men. These results are reflective of the fact that females generally have more interests towards the study of early childhood education programs as compared to males.

#### 4.1.2 Age

The age distribution of the respondents is presented in Table 4.2. As depicted in the table, 56 representing 70% of the teacher-respondents were within the age range of 31 – 40, 19 representing 23.3% were within the age range of 21-30 and 5 representing 6.7% fell within the age range of 41 – 50. With respect to the head teachers, 23 making up 55.6% were in the age range of 41 – 50 while the rest were in the age range of 31 – 40. Further, out of the eight education officers, 6 representing 75% were in the age range of 41 – 50 while one officer each fell within the age ranges of 31 – 40 and 51 – 60.

**Table 4.2: Age distribution of the respondents**

| Age range    | Teachers  |            | Head teachers |            | Education officers |            |
|--------------|-----------|------------|---------------|------------|--------------------|------------|
|              | Frequency | %          | Frequency     | %          | Frequency          | %          |
| 20 – 30      | 19        | 23.3       | -             | -          | -                  | -          |
| 31 – 40      | 56        | 70         | 18            | 44.4       | 1                  | 12.5       |
| 41 – 50      | 5         | 6.7        | 23            | 55.6       | 6                  | 75         |
| 51 – 60      | -         | -          | -             | -          | 1                  | 12.5       |
| <b>Total</b> | <b>80</b> | <b>100</b> | <b>41</b>     | <b>100</b> | <b>8</b>           | <b>100</b> |

**Source:** Field Survey, 2024

These results demonstrate that majority of the teachers (93.3%) were between the ages of 20 – 40 years whereas majority of the head teachers and officers were between

41 – 50 years. This indicates that majority of the KG teachers in the district are largely in their youth which could be related to the fact that Ghana's population, according to the 2020 population and housing census is dominated by the youth (Ghana Statistical Service, 2021). Further, newly trained teachers, majority of whom are young people, are often posted to serve as classroom teachers to gain experience over time before assuming leadership roles.

#### **4.1.3 Qualification of Respondents**

As shown in Table 4.3, 56 teachers (representing 70%) were first degree holders while 24 (representing 30%) were holders of Diploma in Basic Education (DBE). Out of the 41 head teachers, 23 head teachers (representing 56%) had degrees while 18 head teachers (representing 43.9%) had master's degrees. Further, out of the eight officers who participated in the study, three (constituting 37.5%) had first degrees while five (constituting 62.5%) had master's degrees.

These results indicate that majority of the respondents had fairly high level of qualification which could have positive effects on their attitudes towards inclusion in mainstream classrooms. Also, teachers with high qualification can better appreciate and understand and implement inclusive education practices. The high level of qualification of the respondents could be attributed to the government's policy to make diploma and degrees the minimum qualification to teach in the country. From the results, it can be clearly observed that the qualifications of teachers were mainly diplomas and first degrees while those of head teachers and officers were mainly first degrees and master's degrees. Most of the teachers had diplomas and degrees largely because the contents of

degrees, certificates and diplomas are more useful and suitable for instructing younger students. compared to higher qualifications (Naicker (2008).

**Table 4.3: Qualification of the respondents**

| Respondents  | Qualification |    |        |      |         |      |
|--------------|---------------|----|--------|------|---------|------|
|              | Diploma       |    | Degree |      | Masters |      |
|              | F             | %  | F      | %    | F       | %    |
| Teachers     | 24            | 30 | 56     | 70   | -       | -    |
| Headteachers | -             | -  | 23     | 56.1 | 18      | 43.9 |
| Officers     | -             | -  | 3      | 37.5 | 5       | 62.5 |

F - frequency; % - percent

**Source:** Field Survey, 2024

#### 4.1.4 Number of years respondents have served in their current role

The number of years respondents have served in their current roles is shown in Table 4.4. As shown in the table, majority of the teachers (47.5%) indicated that they have been teaching for one to three years while 36.3%, 10% and 6.2% indicated that they have been teaching for four to six years, seven to nine years and for ten years and above respectively. For the head teachers, majority (43.9%) have served in their current role for four to six years, 12.2% served as head teachers for one to three years and seven to nine years while 31.7% indicated that they have served in their current role for ten years and above. With respect to the teachers, 50% of them indicated that they have been serving in their current role for one to three years while the remaining 50% indicated that they have been serving in their current role for four to six years.

**Table 4.4: Number of years respondents have served in their current role**

| No. of years | Teachers  |      | Head teachers |      | Education officers |    |
|--------------|-----------|------|---------------|------|--------------------|----|
|              | Frequency | %    | Frequency     | %    | Frequency          | %  |
| 1 – 3        | 38        | 47.5 | 5             | 12.2 | 4                  | 50 |
| 4 – 6        | 29        | 36.3 | 18            | 43.9 | 4                  | 50 |
| 7 – 9        | 8         | 10   | 5             | 12.2 | -                  | -  |

|              |    |     |    |      |   |     |
|--------------|----|-----|----|------|---|-----|
| $\geq 10$    | 5  | 6.2 | 13 | 31.7 | - | -   |
| <b>Total</b> | 80 | 100 | 41 | 100  | 8 | 100 |

Source: Field Survey, 2024

#### 4.1.5 Number of years respondents have served in the Nanton district

Table 4.5 presents the number of years the respondents have served in the Nanton District. As clearly indicated in the table, majority of the teachers (60%) served for one to three years whereas majority of the head teachers (75.6%) and officers (75%) indicated that they have served in the district for four to six years. None of the respondents was found to have served in the district for ten years and above.

**Table 4.5: Number of years respondents have served in the Nanton district**

| No. of years | Teachers  |      | Head teachers |      | Education officers |     |
|--------------|-----------|------|---------------|------|--------------------|-----|
|              | Frequency | %    | Frequency     | %    | Frequency          | %   |
| 1 – 3        | 48        | 60   | 5             | 12.2 | 2                  | 25  |
| 4 – 6        | 29        | 36.3 | 31            | 75.6 | 6                  | 75  |
| 7 – 9        | 3         | 3.7  | 5             | 12.2 | -                  | -   |
| $\geq 10$    | -         | -    | -             | -    | -                  | -   |
| <b>Total</b> | 80        | 100  | 41            | 100  | 8                  | 100 |

Source: Field Survey, 2024

#### 4.2 Strategies for Teaching Children with Special education needs

Table 4.6 presents the responses of teachers to statements related to the strategies for teaching kids that require special education. As depicted in the table, about 80% of the respondents strongly agreed and agreed that they used differentiated instruction to accommodate the various requirements of special education students in their classrooms while 10% could say whether they agree or disagree. Regarding the use of visual aids, about 60% strongly agreed and agreed that they use visual aids and assistive technologies to improve the educational opportunities for kids with special education needs in their classrooms while 26.7% gave a neutral response.

Further, 76.6% indicated that they strongly agreed or agreed that they modify their instructional materials to take into account students' diverse learning preferences and skill levels of children with special education needs in their classrooms. Similarly, about 90% of the teachers strongly agreed and agreed that they provide additional support in the form of one-one-one assistance or small group instruction for students in their classes who require special education services. Regarding the application of inclusive teaching methods, such as peer collaboration and cooperative learning in the classroom, about 63.3% strongly agreed or agreed to the statement while 26.7% could not say whether they agree or disagree.

When the respondents were presented with the statement “I routinely collaborate with special education professionals to develop and implement individualized education plans (IEPs) for children with special education needs”, about 50% of them strongly agreed and agreed to it while 36.7% could not say whether they agree or disagree. With respect to establishing a classroom atmosphere that is inclusive and supportive of students, especially those with unique educational needs by promoting a sense of belonging for all, about 73.3% strongly agreed or agreed while 16.7% were neutral.

Similarly, about 73.3% strongly agreed or agreed to using positive reinforcement and behavior management strategies to provide children with unique educational requirements with a supportive learning environment while 16.7% could not say whether they do same or not. Also, 86.7% strongly agreed or agreed to regularly assessing the individual progress and learning outcomes of children with special education needs to tailor their instructional approaches towards enhancing their learning. Further, 70.0% strongly agreed or agreed to employing sensory-friendly approaches to accommodate the

sensory needs of children with special education needs in their classrooms while 10% were neutral.

When respondents were presented with the statement, “use flexible grouping strategies to ensure that children with special education needs have opportunities for social interaction and peer support” about 82.5% indicated that they strongly agreed or agreed to the statement while 13.3% could not say whether they agree or disagree. Also, about 73.3% of the respondents indicated that they strongly agree and agree to the statement ‘I engage in ongoing professional development to enhance their knowledge and skills in effectively teaching children with special education needs.’

The above results were confirmed by the responses gathered from the head teachers and the officers. Majority of the head teachers indicated that teachers in their schools use instructional techniques for students with special education needs and had been using them in their classrooms. For instance, many of them confirmed that teachers in their school adopt differentiation as a teaching strategy in learners in their classrooms. When one of the head teachers was asked the question, “How do your teachers differentiate their teaching to meet the diverse learning needs of children with special education needs in their classroom?”, the following response was given.

**Participant 1** *“Teachers in our schools differentiate their teaching by varying the tasks assigned to learners and allowing them to work at their own pace”.*

Also, when the question, “How do your teachers incorporate visual aids and assistive technologies to enhance the learning experiences of children with special education needs?”, one officer remarked.

**Participant 2** *“Teachers in my circuit make use of television sets, flash cards and micro-projectors and varied font sizes of letters to help learners easily recognize what is taught”.*

With respect to “How do your teachers use positive reinforcement and behavior management strategies to foster a positive learning environment for children with special education needs?”, one officer gave the following response.

**Participant 3** *“Teachers in my circuit make use of verbal cues such as thumps up, clapping; verbal cues such as saying thank you, excellent work and tangible rewards such as giving of candies to foster positive learning environments in their classrooms”.*

These results indicate that many teachers at early childhood centers in the Nanton District have considerable level of knowledge of a wide range of instructional strategies for teaching learners with special education needs. Indeed, the fact that a high percentage of teachers agreed to adopting various instructional strategies such as differentiated learning, scaffolding, peer teaching, collaborative and cooperative learning means that many of them can identify the learning difficulties of their learners and select appropriate instructional strategies based on the unique conditions and abilities of each learner to help them learn effectively. This is supported by Amoako (2020) who posited that if teachers are prepared to select appropriate strategies or methods of teaching that meets the needs of every learner in an inclusive classroom, it would help them to maximize learning in the classroom.

The instructional strategies adopted by many of the teachers in this study are consistent with well documented inclusive instructional strategies in the literature (Hattie, 2009). On the contrary, the findings of this study in contrast to the assertion that many teachers in mainstream classrooms still adopt a ‘one-size-fit-all’ approach to teaching

learners in inclusive classrooms. Also, in contrast to Amoako (2020) who remarked that most teachers tend to use traditional methods in their various classrooms which hampers the implementation of inclusive education in Ghana, the adoption of the different instructional strategies by the teachers in this study could be an important contributory factor to the successful implementation of inclusive education policy.

The high knowledge many of the teachers have about instructional strategies appropriate for teaching learners with special education needs could be attributed to their high professional qualifications, teaching experience and the continuous professional development trainings they have received in the past. This assertion is consistent with Bender et al. (2008) who posited that teachers' backgrounds, experience, and educational level are related to how frequently teachers utilize effective inclusive strategies in the general education classroom. The educational level of a teacher is an important factor that can influence his/her classroom practice and attitudes. For instance, teachers with higher qualifications are more likely to better appreciate and understand inclusive education issues and show more positive attitudes towards learners with special education needs which is critical in determining the use of instructional strategies in inclusive classrooms. This is corroborated by Bender et al. (2008) who reported that negative attitudes towards inclusion resulted in less frequent use of effective instructional strategies.

Teaching experience has also been noted as an important factor that influences the use of instructional strategies to facilitate the learning of LSNs. For instance, a study conducted by Carlson et al. (2012) found that teaching experience was an important contributing factor to teachers' practices in their classrooms. Alhassan and Abosi (2014) also contend teaching experience is essential for effectively teaching students with

learning disabilities in a regular classroom, as evidenced by the fact that teachers with years of experience are more likely to be competent in meeting the needs of students with LDs in a regular classroom than inexperienced teachers.

The role of training and professional development has also been underscored in the adoption of effective instructional strategies in inclusive classrooms. For instance, Carlson et al. (2012) attributed the poor adoption of instructional strategies by teachers to the lack of in-service training or support. Mukhopadhyay et al. (as cited in Alhassan and Abosi, 2014) also found that In Botswana, it might be challenging for teachers without any prior teaching experience or training in inclusive teaching methods to work with students with disabilities in a typical classroom. In view of the importance training plays in the adoption of instructional strategies, Murawski (2006) posits that before any new teaching strategies are implemented, professional development should be jointly provided for teachers charged with delivering the instructional changes.

#### **4.2.1 Introduction to the Survey data Tables**

The table below presents findings from a field survey, which explored key elements that shape the quality and inclusivity of teaching and learning experiences of school in the Nanton District. Specifically, the study focused on four critical areas: teaching strategies employed by teachers in teaching learners with special needs, utilization of instruction resources, curriculum adaptation, physical and environmental accommodation . The goal was to gain practical insight into how teachers are prepared to teach learners with special needs in inclusive classrooms in the Nanton District, identify notable gaps and provide actionable support . The data gathered reflects the voices and experiences of teachers and officers about current practices and opportunities for growth.

**Table 4.6: Teachers' knowledge and skills regarding strategies for teaching children with special education needs (N=80)**

| Statement                                                                                                                                                                     | SA |      | A  |      | N  |      | DA |      | SDA |     |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|----|------|----|------|----|------|-----|-----|
|                                                                                                                                                                               | F  | %    | F  | %    | F  | %    | F  | %    | F   | %   |
| 1. I utilize differentiated instruction to accommodate children's various learning demands with special education needs                                                       | 16 | 20   | 48 | 60   | 8  | 10   | 5  | 6.7  | 3   | 3.3 |
| 2. I regularly use assistive technology and visual aids to improve learning experiences of children with special education needs                                              | 5  | 6.7  | 43 | 53.3 | 21 | 26.7 | 8  | 10   | 3   | 3.3 |
| 3. I adapt my teaching materials to accommodate the various learning styles and abilities of children with special education needs                                            | 19 | 23.3 | 43 | 53.3 | 8  | 10   | 5  | 6.7  | 5   | 6.7 |
| 4. I provide additional support for kids with special schooling needs, like one-on-one help or training in small groups                                                       | 19 | 23.3 | 53 | 66.7 | 3  | 3.3  | 5  | 6.7  | -   | -   |
| 5. I employ inclusive teaching practices, such as peer collaboration and cooperative learning in my classroom                                                                 | 24 | 30   | 27 | 33.3 | 21 | 26.7 | 8  | 10   | -   | -   |
| 6. I routinely Create and carry out individualised education plans (IEPs) for kids with special education needs in coordination with special education specialists.           | 8  | 10   | 32 | 40   | 29 | 36.7 | 11 | 13.3 | -   | -   |
| 7. I foster a sense of belonging for all students, including those with special education needs, in order to establish a classroom climate that is encouraging and inclusive. | 27 | 33.3 | 32 | 40   | 13 | 16.7 | 8  | 10   | -   | -   |
| 8. I use positive reinforcement and behavior management strategies to foster a positive learning environment for kids that require special education.                         | 27 | 33.3 | 32 | 40   | 13 | 16.7 | 8  | 10   | -   | -   |
| 9. I regularly assess the individual progress regarding the academic achievements of kids with special education needs to tailor their instructional approaches.              | 16 | 20   | 53 | 66.7 | 8  | 10   | -  | -    | 3   | 3.3 |
| 10. I employ sensory-friendly approaches to accommodate the sensory needs of youngsters in the classroom who require special education.                                       | 13 | 16.7 | 43 | 53.3 | 16 | 20   | 8  | 10   | -   | -   |
| 11. I use flexible grouping strategies to guarantee that special education students need have opportunities for social interaction and peer support.                          | 16 | 20   | 50 | 62.5 | 11 | 13.3 | 3  | 3.3  | -   | -   |
| 12. I participate in continuing professional development to improve their understanding and abilities to instruct students with special education needs.                      | 16 | 20   | 43 | 53.3 | 11 | 13.3 | 11 | 13.3 | -   | -   |

**SA-strongly agree; A-agree; N-neutral; DA-disagree; SDA- strongly disagree****Source:** Field Survey, 2024

### **4.3 Utilization of Instructional Resources by Teachers in Teaching Early Childhood Learners with Special education needs**

Table 4.7 presents the responses of teachers with respect to their use of instructional resources in teaching learners with special education needs at early childhood centers in the Nanton district. As depicted in the table, majority of the teachers (73.3%) indicated that they incorporate diverse instructional materials in their lessons to cater for the varied learning needs of early childhood learners with special education needs in their classrooms while 16.7% could not say whether they do same or not. Similarly, majority of the teachers (73.3%) strongly agreed or agreed that they adapt traditional instructional resources, such as textbooks and workbooks, to make them accessible and beneficial for early childhood learners with special education needs while 16.7% gave a neutral response.

Further, about 76.7% of the teachers strongly agreed or agreed that they use visual aids, such as charts, diagrams, and images, to support the understanding of early childhood learners with special education needs while only 10% indicated that they do not use visual aids in teaching. Again, about 76.7% strongly agreed and agreed that they employ differentiated instructional strategies to match instructional resources with the varied learning styles and abilities of early childhood learners with special education needs. The same proportion (76.7%) of the teachers strongly agreed or agreed that they take advantage of professional development opportunities to enhance my knowledge and skills in integrating instructional resources for early childhood learners with special education needs.

When it came to the question of whether teachers facilitate hands-on learning experiences and interactive activities using a variety of instructional resources for early childhood learners with special education needs, about 76.3 % of the teachers answered in the affirmative while 10% answered in the negative with 13.3% giving a neutral response. Also, about 73.3% strongly agreed or agreed that they consistently evaluate the effectiveness of instructional resources in meeting the individualized needs of early childhood learners with special education needs while 6.7% strongly disagreed.

However, when the respondents were presented with the statement ‘I regularly use a wide range of assistive technologies to enhance the learning experiences of early childhood learners with special education needs’, only 40% agreed while 33.3% and 26.6% gave a neutral response and disagreed respectively. Similarly, only 34.2% strongly agreed and agreed that specialized tools and equipment are readily available, and they integrate them into classroom activities for the benefit of early childhood learners with special education needs. Again, only 36.7% agreed that they integrate adaptive technology tools, such as screen readers or speech-to-text software into instructional practices for early childhood learners with special education needs.

Some of the above results were confirmed by the head teachers during the interviews. For instance, when the question, “How do your teachers incorporate various instructional materials to cater for the varied learning needs of early childhood learners with special education needs?”, one of the officers gave the following response.

**Participant 4** “*Teachers in my schools use a variety of instructional resources including textbooks, card boards, flip charts, flash cards, and televisions in their lessons to teach letters of the alphabets and letter sounds, games and songs*”.

Similarly, when the question, “In what ways do your teachers modify traditional instructional resources, such as textbooks and workbooks, to make them accessible for early childhood learners with special education needs?” was posed to one officer, the following comment was made.

**Participant 5** *“Teachers modify learners’ textbooks by using digital and soft copy versions where projectors and computers are used to magnify and zoom in on the content to increase their visual appeal”.*

From the findings reported above, it can be argued that many teachers at the early childhood education centers in the district incorporate diverse instructional materials in the teaching and learning process in their classrooms. This observation could be related to the teachers’ characteristics. This is backed by Ngeru (2015) who contend that teacher characteristics such as education qualification, teaching experience, gender and age have great influences on the type of instructional resources utilized in the classroom.

The use of the diverse range of instructional materials demonstrates that the teachers have a good understanding of how to meet the needs of individual learners in their classrooms which is critical for the successful implementation of inclusive education. This view is supported by Okongo et al. (2015) who intimated that the successful implementation of inclusive education depends on the adequacy of human and teaching and learning resources. The use of the diverse instructional materials by KG teachers as reported in this study is essential in early childhood programmes as they suggest the direction and provide the raw materials for children’s exploration and learning (Feeney as cited in Ngeru, 2015). Further, the use of a wide range of materials

could benefit learners' small muscle coordination, concepts about the world, creativity, social skills and self-awareness (Ngeru, 2015).

The findings revealed that majority of the teachers used mainly traditional instructional materials such as textbooks, flash cards, workbooks, pictures and diagrams. This could be attributed to the rural nature of the study area and the lack of infrastructure and facilities, such as access to electricity, to support the use of modern instructional materials. This assertion is supported by Dnovughe (2012) who observed that the location of a school plays a significant role in the use of instructional resources.

The results also showed that the use of assistive and adaptive technologies as well as specialized tools and equipment is low among the teachers. This is consistent with the findings of Zakaria et al. (2018) who observed low level of utilization of assistive technology among special education teachers in the Northern Region of Ghana. The low utilization of assistive devices by the teachers could be attributed to low level of government investment at the basic school level, the type of schools and low level of IT (information Technology) proficiency by the teachers. This is supported by Nyavori & Amaniampong (2020) who identified limited knowledge of students and teachers in operating assistive devices as an important factor that influences their use at the Ghana National Inclusive Basic Schools.

The low availability of assistive devices in the schools could also be attributed to the fact that majority of the schools were public schools which mainly depend on government funding to procure such technologies. This assertion is supported by Alimi et al. (2022) who contend that school type is an important demographic characteristic of schools that influences the availability and utilization of assistive technology in the teaching-learning process. The low utilization of assistive and adaptive technologies

could have negative implications for the effective learning of learners with disability (Das & Sarkar, 2015).



**Table 4.7: Teachers' utilization of instructional resources in teaching early childhood learners with special education needs**

| Statement                                                                                                                                                                                    | SA |      | A  |      | N  |      | DA |      | SDA |     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|----|------|----|------|----|------|-----|-----|
|                                                                                                                                                                                              | F  | %    | F  | %    | F  | %    | F  | %    | F   | %   |
| 1. I incorporate diverse instructional materials to cater to the varied learning needs of early childhood learners with special education needs.                                             | 8  | 10   | 51 | 63.3 | 13 | 16.7 | 8  | 10   |     |     |
| 2. I regularly use a wide range of assistive technologies to enhance the learning experiences of early childhood learners with special education needs.                                      | 5  | 6.7  | 27 | 33.3 | 27 | 33.3 | 18 | 23.3 | 3   | 3.3 |
| 3. I adapt traditional instructional resources, such as textbooks and workbooks, to make them accessible and beneficial for early childhood learners with special education needs.           | 16 | 20   | 43 | 53.3 | 13 | 16.7 | 8  | 10   |     |     |
| 4. Specialized tools and equipment are readily available and I integrate them into classroom activities for the benefit of early childhood learners with special education needs.            | 5  | 6.7  | 22 | 27.5 | 21 | 26.7 | 27 | 33.3 | 5   | 6.7 |
| 5. I use visual aids, such as charts, diagrams, and images, to support the understanding of early childhood learners with special education needs.                                           | 16 | 20   | 45 | 56.7 | 8  | 10   | 8  | 10   | 3   | 3.3 |
| 6. I collaborate with educational specialists to identify and integrate suitable instructional resources for early childhood learners with diverse needs.                                    | 8  | 10   | 37 | 46.7 | 27 | 33.3 | 8  | 10   |     |     |
| 7. I integrate Adaptive technology tools, such as screen readers or speech-to-text software into instructional practices for early childhood learners with special education needs.          |    |      | 30 | 36.7 | 21 | 26.7 | 24 | 30   | 5   | 6.7 |
| 8. I actively seek and utilize culturally relevant instructional resources to create an inclusive learning environment for early childhood learners with special education needs.            | 5  | 6.7  | 43 | 53.3 | 24 | 30   | 5  | 6.7  | 3   | 3.3 |
| 9. I employ differentiated instructional strategies to match instructional resources with the varied learning styles and abilities of early childhood learners with special education needs. | 13 | 16.7 | 48 | 60   | 11 | 13.3 | 8  | 10   |     |     |
| 10. I consistently evaluate the effectiveness of instructional resources in meeting the individualized needs of early childhood learners with special education needs.                       | 16 | 20   | 43 | 53.3 | 16 | 20   | 5  | 6.7  |     |     |

|                                                                                                                                                                                                     |    |      |    |    |    |      |   |     |   |     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|----|----|----|------|---|-----|---|-----|
| 11. I facilitate hands-on learning experiences and interactive activities using a variety of instructional resources for early childhood learners with special education needs.                     | 11 | 13.3 | 50 | 63 | 11 | 13.3 | 8 | 10  |   |     |
| 12. I take advantage of professional development opportunities to enhance my knowledge and skills in integrating instructional resources for early childhood learners with special education needs. | 13 | 16.7 | 48 | 60 | 11 | 13.3 | 3 | 3.3 | 5 | 6.7 |

**SA-strongly agree; A-agree; N-neutral; DA-disagree; SDA- strongly disagree**

**Source:** Field Survey, 2024



#### **4.4 Adaptation of the Current Curriculum to Accommodate the Learning Needs of Children with Special education needs at Early Childhood Centers**

In Table 4.8, the responses of teachers regarding how the current curriculum is adapted to accommodate the learning needs of children with special education needs is presented. From the table, the results indicate that majority of the teachers make modifications in adapting the curriculum to accommodate the learning needs of children with special education needs in two major aspects: instructional materials and assessment.

Again, the results show that majority of the teachers (63.3%) modify instructional materials by changing the font size and color contrast of text to enhance accessibility for learners with visual impairment. Similarly, 70% of the teachers indicated that they adjust the pacing of instructional materials to accommodate learners needing additional time to process information. However, only 26.7% of the teachers indicated that they adjust instructional materials by providing audio versions or transcripts to support learners with auditory processing challenges. Also, only about 46.7% of the teachers agreed that they incorporate tactile elements to benefit learners with sensory processing challenges.

Further, the results show that assessment is modified by majority of the teachers to accommodate the learning needs of special education needs children. For instance, 70% of the teachers strongly agreed and agreed that they modify assessment format through extended time and alternative testing while 73.3% indicated that they modify assessment using visual aids and prompts. Also, about 76.3% affirmed that they modify assessment by adjusting assessment materials (by giving clear and concise instructions)

while 76.7% affirmed that they modify assessment by providing alternative assessment options. Further, assessment was modified by offering flexibility of assessment guidelines (76.3% of the teachers) and by providing multiple means of expression for learners with diverse communication abilities (70.0%).

When the officers were asked, “Do your teachers make adjustments in instructional materials, such as providing audio versions or transcripts, to support learners with auditory processing challenges?”, majority of them responded in the affirmative. One of them indicated that.

**Participant 6** *“Teachers have recorded versions of songs and pronunciation on their pen drives which they play to learners using Bluetooth audio players”.*

The responses from the officers confirm that teachers provide flexible assignment deadlines to cater for the learning needs of slow learners. For instance, one officer maintained that.

**Participant 7** *“I make sure that teachers in my circuit give different tasks and of varying degrees to learners and allow them to complete them at their own pace. This has helped those with learning difficulties to feel part of the class and see themselves as achievers”.*

Inferring from these results, it can be argued that many of the teachers have considerable knowledge of modifications that are required in adapting the current curriculum to meet the needs of their learners including those with disabilities. The use of strategies such as differentiated instruction to modify content, methods and assessment constitute an important way to remove impediments and barriers and make learning more effective to learners. It also shows that many of the teachers are prepared

to carry out their roles in the classroom. This assertion is in line with Tyagi (2016) who opined that role of a teacher in an inclusive classroom involves making suitable adaptations in the curriculum so that children with disability can learn according to their abilities.

Modification of instructional materials in terms of format, pacing and incorporation of tactile elements was high and commonly adopted among the teachers partly since these modifications are relatively less costly to implement in the classroom. Cost is an important factor that is often considered by teachers in carrying out certain actions in the classroom to facilitate learning. When the cost associated with an action is high, teachers are not always willing to bear it and this could be attributed to low motivation and remuneration. This is demonstrated by the fact that only a few teachers agreed that they adjusted instructional materials by providing audio versions or transcripts of their classroom activities.

The findings of this study contradict the assertions of Kuyini & Desai (2008) that teachers make limited instructional adaptation to support children with disabilities in regular classrooms. Similarly, the findings reported in this study contrast with Agbenyega and Deku (2011) who found that current teaching practices in the regular classrooms in Ghana is prescriptive, inflexible, and mechanistic and do not value variety of learning styles of the pupils.

**Table 4.8: Responses of teachers regarding how they adapt the Current Curriculum to Accommodate the Learning Needs of Children with Special education needs in Early Childhood Centers**

| Statement                                                                                                                                                              | SA |      | A  |      | N  |      | DA |      | SDA |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|----|------|----|------|----|------|-----|-----|
|                                                                                                                                                                        | F  | %    | F  | %    | F  | %    | F  | %    | F   | %   |
| 1. I modify the format of instructional materials (e.g., font size, color contrast) to enhance accessibility for learners with visual impairments.                     | 8  | 10   | 43 | 53.3 | 19 | 23.3 | 5  | 6.7  | 5   | 6.7 |
| 2. Adjustments in instructional materials, such as providing audio versions or transcripts, are commonly made to support learners with auditory processing challenges. | 8  | 10   | 13 | 16.7 | 37 | 46.7 | 19 | 23.3 | 3   | 3.3 |
| 3. I frequently differentiate assignments and instructional content to address the diverse learning styles of learners with special education needs.                   | 8  | 10   | 43 | 53.3 | 21 | 26.7 | 8  | 10   |     |     |
| 4. Modifications in assessment formats (e.g., extended time, alternative testing methods) are regularly provided to accommodate learners with diverse needs.           | 8  | 10   | 48 | 60   | 16 | 20   | 8  | 10   |     |     |
| 5. I use visual aids and prompts in assessments to support learners with attention-related challenges or learning disabilities.                                        | 11 | 13.3 | 48 | 60   | 13 | 16.7 | 5  | 6.7  | 3   | 3.3 |
| 6. Assessment materials are adjusted to include clear and concise instructions, facilitating understanding for learners with language-related difficulties.            | 11 | 13.3 | 50 | 63   | 8  | 10   | 11 | 13.3 |     |     |
| 7. I regularly provide alternative assessment options, allowing learners with special education needs to demonstrate understanding through varied means.               | 21 | 26.7 | 40 | 50   | 13 | 16.7 | 5  | 6.7  |     |     |
| 8. I make modifications in instructional materials to incorporate tactile elements, benefiting learners with sensory processing challenges.                            |    |      | 37 | 46.7 | 24 | 30   | 19 | 23.3 |     |     |
| 9. I frequently adjust the pacing of instructional materials to accommodate learners who may require additional time to process information.                           | 16 | 20   | 40 | 50   | 19 | 23.3 | 5  | 6.7  |     |     |
| 10. I regularly offer flexibility in assignment deadlines to accommodate the varying processing speeds of learners with special education needs.                       | 11 | 13.3 | 50 | 63   | 16 | 20   | 3  | 3.3  |     |     |
| 11. Assessment materials are designed to allow for multiple means of expression, providing options for learners with diverse communication abilities.                  | 16 | 20   | 40 | 50   | 21 | 26.7 | 3  | 3.3  |     |     |
| 12. I use feedback from learners with special education needs to inform ongoing modifications in instructional and assessment materials.                               | 8  | 10   | 50 | 63   | 19 | 23.3 | 3  | 3.3  |     |     |

**SA-strongly agree; A-agree; N-neutral; DA-disagree; SDA- strongly disagree**

**Source:** Field Survey,2024



#### **4.5 Physical and Environmental Accommodations within Classrooms that Facilitate the Inclusion of Children with Special education needs**

The responses of teachers regarding the physical and environmental modifications put in place to facilitate the learning of children with special education needs are presented in Table 4.9. From the table, the results show that majority of the teachers indicate that they have put in place varied physical and environmental modifications in their classrooms to help children with special education needs overcome their difficulties in learning. For instance, 63.3% indicated that physical accommodations, such as wheelchair ramps and accessible entrances have been put in place to enable learners with special education needs have easy access to the classroom while 26.7% could not say whether same have been made to help learners with special education needs in their classrooms.

Also, 90% of the teachers agreed that adjustable furniture is available, and seating arrangements are made to contribute to the physical comfort and accessibility of all learners including those with disabilities. Similarly, 76.7% of the teachers affirmed that their classroom layouts are designed to facilitate easy movement for learners with physical disabilities and promote an inclusive and barrier-free environment for them. Further, 73.3% of the teachers indicated that environmental accommodations, such as noise reduction measures have been put in place to create a more conducive learning environment for children with auditory sensitivities.

Other physical and environmental modifications which were affirmed by the teachers included the creation of designated quiet spaces and sensory breaks (66.7%), strategic placement of visual cues and signage (40%) and the organization of classroom

materials and resources in a way that supports easy access for all learners including those with mobility challenges (80%). About 83.3% of the teachers also agreed that they actively involve learners in the arrangement and design of the learning environment to ensure it meets their diverse needs. As already observed, the findings revealed that only a few teachers (22%) agreed that they modify the learning environment by using assistive technologies to enhance the learning experiences and participation of learners with diverse needs.

These results were confirmed by the head teachers and the district education officers during the interview sessions. For instance, when the head teachers were asked, “In what ways do adjustable furniture and seating arrangements contribute to the physical comfort and accessibility of all learners?”, one of the common responses was.

**Participant 5** *“In our schools, we make sure that the furniture is made in a way that guarantees comfort for all learners. We also allow for specialized furniture to be brought to the classroom by learners with special education needs from their homes to ensure their comfort. Also, we ensure that, enough spaces are created in the classroom to facilitate easy movement around the classroom.”*

When they were asked, “In what ways are visual cues and signage strategically placed to assist learners with navigation and orientation in the early childhood center?”, one of them gave the following remark.

**Participant 2** *“visual cues and signage are hanged on the classroom wall at strategic places to enable learners easily navigate the classroom and know where to find what and place what in the classroom”.*

The above findings demonstrate that majority of teachers at the early childhood education centers in the Nanton District adopt a wide range of curriculum adaptation strategies which could contribute to the removal of barriers that make school environments inaccessible to learners with special education needs. For instance, the availability of wheelchair ramps and wide classroom entrances is recognized as an important strategy for ensuring that classrooms are accessible to learners (Mulinge, 2016).

This study also shows that modifications that involve the use of specialized tools and equipment including assistive and adaptive devices have not been widely adopted by many of the teachers. This could be attributed to several factors including the location of the schools, inadequate government funding and poor knowledge of teachers in using such devices. The non-availability and usage of these technologies could have negative impacts on the effective learning of children with disabilities in the district. This is because computers have increasingly become an important part of today's inclusive classrooms and so technologies such as assistive and adaptive technologies have become important tools for implementing inclusive education across the globe (Andrean et al. 2021).

**Table 4.9: Teachers' responses regarding the physical and environmental accommodations made within classrooms to facilitate the inclusion of children with special education needs**

| Statement                                                                                                                                                                          | SA |      | A  |      | N  |      | DA |      | SDA |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------|----|------|----|------|----|------|-----|-----|
|                                                                                                                                                                                    | F  | %    | F  | %    | F  | %    | F  | %    | F   | %   |
| 1. Physical accommodations, such as wheelchair ramps and accessible entrances, have been made to contribute to the overall inclusivity of early childhood centers.                 | 27 | 33.3 | 24 | 30   | 21 | 26.7 | 5  | 6.7  | 3   | 3.3 |
| 2. Environmental modifications, such as sensory-friendly classrooms are there to enhance the learning experiences of children with sensory processing challenges.                  | 27 | 33.3 | 29 | 36.7 | 16 | 20   | 5  | 6.7  | 3   | 3.3 |
| 3. Adjustable furniture is available and seating arrangements are made to contribute to the physical comfort and accessibility of all learners.                                    | 27 | 33.3 | 45 | 56.7 | 8  | 10   |    |      |     |     |
| 4. Classroom layouts are designed to facilitate easy movement for learners with physical disabilities, promoting an inclusive and barrier-free environment.                        | 24 | 30   | 37 | 46.7 | 16 | 20   |    |      | 3   | 3.3 |
| 5. Environmental accommodations, such as noise reduction measures have been put in place to create a more conducive learning environment for children with auditory sensitivities. | 24 | 30   | 35 | 43.3 | 16 | 20   | 3  | 3.3  | 3   | 3.3 |
| 6. Designated quiet spaces and sensory breaks have been created to contribute to the emotional well-being of learners with special education needs.                                | 16 | 20   | 37 | 46.7 | 21 | 26.7 | 5  | 6.7  |     |     |
| 7. Visual cues and signage are strategically placed to assist learners with navigation and orientation problems in the early childhood center.                                     | 8  | 10   | 24 | 30   | 29 | 36.7 | 13 | 16.7 | 5   | 6.7 |
| 8. Physical accommodations, such as accessible restrooms and changing facilities, are there to ensure the dignity and independence of all learners.                                | 21 | 26.7 | 27 | 33.3 | 21 | 26.7 | 11 | 13.3 |     |     |
| 9. Classroom materials and resources are organized in a way that supports easy access for all learners, including those with mobility challenges.                                  | 21 | 26.7 | 43 | 53.3 | 8  | 10   | 8  | 10   |     |     |
| 10. Assistive technologies and devices are available to enhance the learning experiences and participation of learners with diverse needs.                                         | 8  | 10   | 10 | 12   | 22 | 28   | 25 | 31   | 15  | 19  |
| 11. Environmental accommodations have been made considering the diverse sensory needs of learners to help minimize distractions and support focus.                                 | 19 | 23.3 | 45 | 56.7 | 16 | 20   |    |      |     |     |
| 12. I actively involve learners in the arrangement and design of the learning environment to ensure it meets their diverse needs.                                                  | 11 | 13.3 | 56 | 70   | 11 | 13.3 | 3  | 3.3  |     |     |

**SA-strongly agree; A-agree; N-neutral; DA-disagree; SDA- strongly disagree**

**Source:** Field Survey, 2024



## **4.6 Discussion of Observation Findings**

The observation aimed to explore how early childhood teachers in the Nanton District support learners with special needs focusing on for key areas , curriculum modifications, use of instructional resources, teaching strategies use by teachers and environmental modifications. The findings of this observation reveal commendable practices by teachers that confirm the findings obtained from the questionnaire responses.

### **4.6.1 Curriculum Modifications**

The observation conducted revealed that curriculum adjustment was taking place in the classroom to some extent, particularly in the areas of differentiation of assignment which was practiced by majority of the teachers. Out of 15 teachers observed, it was revealed that 12 of them differentiated assignment for learners with special need. This practice is a positive indicator that educators recognized the diverse needs of learners and making efforts to accommodate them. This assertion is in line with Tyagi (2016) who opined that role of a teacher in an inclusive classroom involves making suitable adaptations in the curriculum so that children with disability can learn according to their abilities.

However, only few teachers made efforts to adjust instructions using audio materials. Out of the 15 teachers observed, only 4 of them adjusted instruction using audio materials. This suggests limited use of multisensory teaching approaches which can negatively affect some learners with special needs. The use of tactile elements and extension of instruction time for learners with special needs was observed.

#### **4.6.2 Instructional Resource Use**

The observation carried out revealed significant evidence of diverse instructional materials being used in the various classrooms visited for the observation including visual aids. This practice resonates with early childhood pedagogical best practices as the use of visuals can greatly enhance the understanding of learners with special needs. This view is supported by Okongo et al. (2015) who intimated that the successful implementation of inclusive education depends on the adequacy of human and teaching and learning resources. Nonetheless, there were gaps in the use of specialized tools in the classrooms. There was almost an absence of assistive and adaptive technologies which are essential for supporting learners with special needs. Though the observation revealed some culturally relevant materials being used, they were not widespread.

#### **4.6.3 Teaching Strategies**

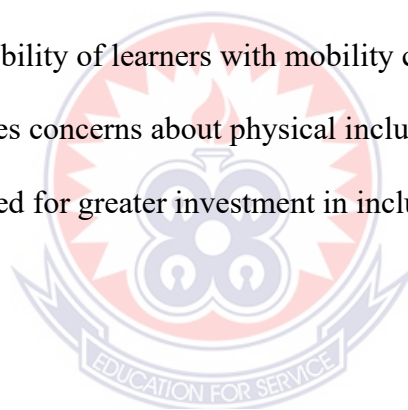
The observation findings revealed a variety of effective teaching strategies being used by teachers which indicates a growing awareness among teachers of inclusive practices. The strategies observed being used by teachers were differentiated instruction tailored towards individual needs, one on one support, the use of positive reinforcement and small and flexible groupings among learners. Such strategies observed to be used are highly important in early childhood education as learners are diverse in their development and require multiple instructional strategies to meet their need. This is supported by Amoako (2020) who posited that if teachers are prepared to select appropriate strategies or methods of teaching that meets the needs of every

learner in an inclusive classroom, it would help them to maximize learning in the classroom.

However, the impact of these strategies will be limited without access to appropriate resource and supportive environment

#### **4.6.4 Environmental Modifications**

The learning environments varied significantly across the various centered observed. While some classrooms were properly laid out and equipped with age appropriate furniture, there was notable lack of assistive technologies and infrastructural support such as ramps, wheel chairs and lightening .These are crucial for the physical accessibility of learners with mobility challenges. The absence of these modification raises concerns about physical inclusion of children with special needs and suggest a need for greater investment in inclusive infrastructure and classroom design.



#### **4.6.5 Conclusion**

The observation data and findings highlight both significant progress being made by teachers and notable challenges in supporting learners with special needs in early childhood centers. The findings revealed that teachers are making visible efforts in terms of curriculum adjustment, instructional strategies and resource use. There is however critical gaps in the use of specialized instructions resources and environmental accommodations

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATION

#### 5.0 Overview

This chapter presents the summary of the study, the key findings, the conclusions drawn from the findings and recommendations made for policy, practice and future research.

#### 5.1 Summary

Teacher preparedness is a crucial factor in the implementation of inclusive education. In view of this, this study assessed the preparedness of teachers to teach learners with special education needs at early childhood centers in the Nanton District. (James, 2025) The study was set out to achieve four specific objectives. These include.

1. To assess the strategies used by teachers in the Nanton District for teaching children with special education needs.
2. To investigate the capabilities of teachers in the Nanton District to use instructional resources in educating early childhood learners with special education needs.
3. To assess the extent to which the current curriculum in early childhood is adapted to accommodate the learning needs of children with special education needs.
4. To investigate the environmental accommodations that facilitate the inclusion of children with special education needs.

A mixed methods research approach was adopted for the study. Both quantitative and qualitative data were collected from KG teachers, head teachers and education officers using questionnaires, observations and interviews. A total of 80 teachers were sampled for the study using purposive sampling and simple random sampling techniques. The data were analyzed using frequencies and percentages. Results were presented in tables, pie charts and bar charts

## 5.2 Key Findings

### **Research question 1: What specific strategies do teachers in the Nanton District employ when teaching children with special education needs in early childhood settings?**

The study found that majority of KG teachers at early childhood centers have considerable knowledge of the strategies for teaching learners with special education needs. The strategies which are familiar to majority of the teachers and widely adopted include.

1. Differentiated instruction.
2. Use of visual aids and assistive technologies.
3. Adaption of learning materials to match learners learning styles.
4. Provision of one-on-one assistance and small group instruction.
5. Peer collaboration and cooperative learning.
6. Use of positive reinforcement and behavior management strategies.
7. Assessment of individual learner's progress and learning outcomes.
8. Use of sensory-friendly approaches.
9. Use of flexible grouping strategies.
10. Collaborating with special education professionals to develop and implement individualized education plans.
11. Undertaking professional development opportunities.

**Research question 2: How do teachers in the district integrate instructional resources when educating early childhood learners with special education needs?**

The study made the following key findings with respect to the utilization of instructional resources by teachers in educating early childhood learners with special education needs within the Nanton district.

1. The study found that majority of the teachers used diverse instructional materials to take care of the needs of all learners including those with special education needs.
2. Only a small number of the teachers use a wide range of assistive technology in teaching in their classrooms.
3. Specialized tools and equipment are not widely available and only a small number of the teachers use them.
4. Majority of the teachers use visual aids such as charts, diagrams and images in teaching learners.
5. A small number of the teachers use adaptive technology such as screen readers, speech-to-text software in their classrooms.
6. A considerable number of the teachers use culturally relevant instructional resources in teaching their students.

**Research question 3: What modifications or adjustments are commonly made by teachers in instructional and assessment materials to accommodate learners with special education needs?**

The key findings of this study regarding the extent to which teachers at early childhood education centers in the Nanton district modify the curriculum to accommodate the needs of children with special education needs are summarized as follows.

1. Many of the teachers (63.3%) make modifications to the format of instructional materials to accommodate the needs of LSN.
2. Only a few of the teachers (26.7%) adjust instructional materials by providing audio versions and transcripts to accommodate the needs of LSN in their classrooms.
3. Many of the teachers (63.3%) differentiate assignments and instructional content to accommodate the needs of learners with special education needs in their classrooms.
4. Instructional materials are modified to include tactile elements by about 46.7% of the teachers.
5. About 70% of the teachers adjust the pacing of instructional materials to accommodate the needs of LSN.
6. Majority of the teachers (70%) modify assessment formats by providing extended time and alternative testing methods.
7. Assessment materials are adjusted to provide clear and concise instructions.
8. Assessment is modified by providing alternative assessment options.
9. Visual aids and prompts are used in assessments to accommodate the needs of LSN.
10. Many of the teachers (76.3) modify assessment by providing flexibility in assignment deadlines.
11. Assessment is modified to allow for multiple means of expression.

**Research question 4: How do physical and environmental accommodations contribute to creating an inclusive learning environment in the early childhood centers?**

This study has found that many of the early childhood education centers in the Nanton district.

1. Had considerable number of wheelchair ramps and doors with appropriate width to make classrooms more accessible to LSN.
2. Had adjustable furniture for learners and ensured that proper seating arrangements were created to make classrooms conducive for learners with special education needs.
3. Ensured that classroom layouts were properly designed to facilitate easy movement for learners with special education needs.
4. Had adequate quiet spaces and sensory breaks to promote the emotional well-being of LSN.
5. Did not have visual cues and signage strategically placed in the classroom to facilitate easy navigation for learners with special education needs within the classroom.
6. Had few or no assistive technologies in their classrooms to facilitate the effective learning of learners with special education needs.

### **5.3 Conclusions**

The study's findings led to the following deductions being made.

1. The teachers at the early childhood education centers had good knowledge of conventional inclusive teaching strategies but limited knowledge of modern and technology-based inclusive teaching strategies. This could affect their ability to meet the learning needs of learners with special education needs in their classrooms.
2. Since technology has become an important tool in inclusive classrooms, many of the teachers were poorly prepared to utilize assistive and adaptive devices to help address the learning challenges of learners with special education needs in their classrooms.

3. The teachers had good knowledge of various modifications in the curriculum required for teaching learners with special education needs which was a good indication of their preparedness to teach learners with special education needs. However, their preparedness in terms of modification of instruction using audio versions and transcripts is still very low.

4. The environmental and physical modifications at majority of the early childhood education centers are adequate to provide easy access and help teachers to promote the effective learning of learners with special education needs in their classrooms.

#### **5.4 Recommendations**

The following recommendations have been made to guide policy, practice and future research.

1. Nanton District education Directorate should ensure that assistive and adaptive technologies are made available and accessible to teachers at the early childhood centers, schools and parents at home.

2. More refresher courses and in-service training programs should be organized by Nanton District Education Directorate to equip teachers with the modern and technology-based inclusive teaching strategies including the use of assistive and adaptive technologies.

3. Teachers should be given training by Nanton GES office on curriculum modifications using technology such as audio versions and transcriptions and should be encouraged to employ them in their classrooms to help learners with special education needs.

4. Teachers should be trained by Nanton District education office and encouraged to use materials and technologies such as visual cues, signage, assistive and adaptive devices to help them modify their physical classroom environments to promote effective learning among learners with special education needs.

### **Recommendation for future research**

1. It would be interesting for future studies to investigate the impact of teacher characteristics and preparedness on the achievement and learning outcomes of LSN.

2. This study should be extended to other primary and junior high schools in future studies to enhance our understanding of how teachers are prepared to teach LSN in mainstream schools across the country.



### **REFERENCES**

- .Alimi, A. E., Babalola, E. O., Aladesusi, G. A., Issa, A. I. & Omolafe, E. V. (2021).  
Availability and utilization of assistive technology for learning among students

- with special education needs in Ilorin, Kwara State. *Indonesian Journal of Community and Special education needs Education*. 2(1):17-28.
- Abdulai A. (2014). Challenges Facing Early Childhood Education in Ghana. What do Stakeholders say? *Advances in Social Sciences Research Journal*. 1(3): 11-23.
- Ackah Jnr, F. R. (2010b). A portrait of inclusive early childhood education in Ghana. What we need to know. *Ghana Journal of Health, Physical Education Recreation, Sports and Dance*, 3(3):139-152.
- Ackah, F. R. (2016). *Implementation of inclusive early childhood education policy and change in Ghana: Four case sites of practice*. PhD thesis, Griffith University. <https://doi.org/10.25904/1912/3104>.
- Ackah-Jnr, F. R. (2018). System and school-level resources for transforming and optimizing inclusive education in early childhood settings: What Ghana can learn. *European Journal of Education Studies*, 5(6), 203–220.
- Ackah-Jnr, F. R. (2020). “The teacher should be learning”: In-service professional development and learning of teachers implementing inclusive education in early childhood education settings. *International Journal of Whole Schooling*, 16(2), 93–121.
- Ackah-Jnr, F. R., & Udah, H. (2021). Implementing inclusive education in early childhood settings: The interplay and impact of exclusion, teacher qualities, and professional development in Ghana. *Journal of Educational Research and Practice*, 11, 112–125. <https://doi.org/10.5590/JERAP.2021.11.1.08>

- Ackah-Jnr, F. R., Appiah, J., Addo-Kissiedu, K., & Kwao, A. (2022). Early Childhood Education Policy and Practice in Ghana: Document and Evidence Analysis with McDonnell and Elmore's Framework of Policy Instruments. *Multidisciplinary Journal of Educational Research*, 12(3), 295-321. <http://dx.doi.org/10.447/remie.9964>
- Ainscow, M., Booth, T., Dyson, A., Farrell, P., Frankham, J., Gallannaugh, F., Howes, A. and Smith, R. (2006). *Improving Schools, Developing Inclusion*. London: Routledge.
- Akyeampong, K. (2004). *Whole school development: Ghana*. Accessed on 11/09/2023 at [https://www.academia.edu/1074582/Whole\\_school](https://www.academia.edu/1074582/Whole_school)
- Alcosero, A., Carcueva, H., Abasolo, M. C., Arranchado, W. M., Cabanilla Jr, A. (2023). Preparedness of regular teachers in the implementation of inclusive education in the philippines: A meta-synthesis. *International Journal of Research in Engineering and Science (IJRES)*, 11(3): 259-266.
- Alhassan, A. K. & Abosi, O. C. (2014). *Teacher effectiveness in adapting instruction to the needs of pupils with learning difficulties in regular primary schools in Ghana*. SAGE Open, 1-16. DOI: 10.1177/2158244013518929
- Alhassan, A. M. (2014). Implementation of Inclusive Education in Ghanaian Primary Schools: A Look at Teachers' Attitudes. *American Journal of Educational Research*, 2 (3): 142- 148. doi: 10.12691/education-2-3-5.
- Alshahrani, B. and Abu-Alghayth, K. (2023). Teachers' professional development for inclusive education, a perspective from Saudi (mixed methods study).

*Information Science Letters*, 12(3):1497-1504.  
<http://dx.doi.org/10.18576/isl/120337>.

Amoako, R. (2020). *Influence of teacher preparation programme on teacher's competence in inclusive practice in Ashanti Region, Ghana*. Doctoral thesis, University of Cape Coast.

Andrean, H., Pradipta, R. F., Purnamawati, F. (2021). The importance of technology education for children with special education needs in inclusive schools. *Advances in Social Science, Education and Humanities Research*, 601. 7th International Conference on Education and Technology (ICET 2021).

Asare, M. B. (2019). Perception of teachers in regular schools towards inclusive education in Tano South District, Brong Ahafo Region, Ghana. *International Journal of Education, Learning and Development*, 7(1):48-58.

Avramids, E., & Norwich, B. (2002). Teachers' attitudes towards integration/ inclusion: A review of literature. *International Journal of Special Education*, 17(2), 129-147.

Bago, J., Ouedraogo, M., Akakpo, K., Lompo, M. L., Souratié, W. M. & Ouédraogo, E. (2019). Early childhood education and children development: evidence from Ghana. Munich Personal RePEc Archive. *MPRA Paper* No. 9586.  
<https://mpra.ub.uni-muenchen.de/95868/>

Bandura, A. & National Institute of Mental Health (1986). Social foundations of thought and action: A social cognitive theory. Prentice-Hall, Inc.

Bandura, A. (1997). Self-efficacy: the exercise of control. W H Freeman/Times Books/Henry Holt & Co.

- Barrett, P., Davies, F., Zhang, Y. & Barrett, L. (2015). The impact of classroom design on pupils' learning: Final results of a holistic, multi-level analysis. *Building and Environment* 89 (2015):118-133.
- Begs, T. A. (2010). Influences and barriers to the adoption of instructional technology. Paper presented at the *fifth annual Mid-South Instructional Technology Conference*. Accessed on 10/10/2023 at <http://www.mtsu.edu/itconf/proceed00/beggs/beggs.htm>
- Bender, W. N., Boon, R. T., Hinrichs, J., & Lawson, C. (2008). Instructional tactics that facilitate inclusion: Are we doing successful inclusion in secondary classrooms? *Journal of the American Academy of Special Education Professionals*. Accessed on January 28, 2023 at <http://aasep.org/aaseppublications/journal-of-the-american-academy-of-special-education-professionals-jaasep/jaasep-summer2008/instructional-tactics-that-facilitate-inclusion/index.htm>
- Bērziņa, Ž. (2011). School-based mentoring for professional development of inclusive school teachers. *Journal of Teacher Education for Sustainability*, 13(1): 72-83. <https://doi.org/10.2478/v10099-011-0006-0>
- Boakye-Akomeah, E. (2015). *Perception of teachers on inclusive education in selected basic schools in the Cape Coast Metropolis of Ghana*. Master's thesis, University of Cape Coast.
- Botha, J., & Kourkoutas, E. (2016). A community of practice as an inclusive model to support children with social, emotional and behavioural difficulties in school contexts. *International Journal of Inclusive Education*, 20(7):784–799. <https://doi.org/10.1080/13603116.2015.1111448>.

- Carlson, L., B. Hemmings, G. Wurf, & A. Reupert, A. (2012). “The Instructional Strategies and Attitudes of Effective Inclusive Teachers.” *Special Education Perspectives*, 21, 7–20.
- Charles, S. (2011). *Basic school teachers’ attitudes towards Inclusive education in Ghana*. Master’s thesis, University of Jyväskylä, Finland.
- Coleman, P. (2021). Validity and reliability of qualitative research in the caring sciences. *International Journal of Caring Sciences*, 14(3):2041-2045.
- Corcoran, M., & vayda-Manzo, K. (2023). Is teacher Opreparation failing studebts with disabilities? The Hachinger report [http:// hachinger. report.org/ teacher-student-disabilities/](http://hachinger.report.org/teacher-student-disabilities/)
- Creswell, J. W. (2013). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). SAGE Publications. <https://us.sagepub.com/enus/nam/research-design/book237357>.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE.
- Cruz-Garza, J. G., Darfler, M., Rounds, J. D., Gao, E., and Kalantari, S. (2022). *EEG-based Investigation of the Impact of Classroom Design on Cognitive Performance of Students*.
- Cullen, D. (2006). “*JAWS and Dolphins for Nairobi’s blind students*”. The Register. Accessed on 23/10/2023 at([http://www.theregister.co.uk/2006/03/29/computer\\_aid\\_kilimani\\_primary\\_school](http://www.theregister.co.uk/2006/03/29/computer_aid_kilimani_primary_school)).

- Daniela, I., & Ecaterina, V. (2023). Training needs of teachers on inclusive education. In: E. Soare, & C. Langa (Eds.), *Education Facing Contemporary World Issues - EDU WORLD 2022. European Proceedings of Educational Sciences*, 5: 1371-1381. <https://doi.org/10.15405/epes.23045.140>
- Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective Teacher Professional Development*. Palo Alto, CA: Learning Policy Institute.
- Das, D. & Sarkar, B. (2015). Problems of inclusive curriculum transaction. *International Research Journal of Management Sociology & Humanity*, 6(4):382-391.
- Davis, P. & Florian, L. (2004). Teaching strategies and approaches for pupils with special educational needs: A scoping study. Research Report RR516. Department for Education and Skills. Queen's Printer.
- Dawadi, S., Shrestha, S., & Giri, R. A. (2021). Mixed-Methods Research: A Discussion on its Types, Challenges, and Criticisms. *Journal of Practical Studies in Education*, 2(2), 25-36
- Deku, P., & Vanderpuye, I. (2017). Perspectives of teachers regarding inclusive education in Ghana. *International Journal of Whole Schooling*, 13(3), 39-54.
- DeMonbrun, R. M., Finelli, C. J. & Shekhar, P. (2015). Methods for establishing validity and reliability of observation protocols. 122 nd ASEE Annual Conference & Exposition, June 14 – 17, Seattle, USA.
- Elfers, A. M., Stritikus, T., Percy Calaff, K., Von Esch, K.S., & Lucero, A., Knapp, M. S. & Plecki, M. L. (2009). *Building systems of support for classroom teachers working with second language learners*. Seattle, WA: University of Washington.

- Erdem, R. (2017). Students with Special Educational Needs and Assistive Technologies: A Literature Review. *The Turkish Online Journal of Educational Technology*, 16(1):128-146
- European Agency for Development in Special education needs Education (2009). *Multicultural Diversity and Special education needs Education*. A. Grünberger, M. Kyriazopoulou and V. Soriano (eds.). Odense, Denmark
- European Agency for Development in Special education needs Education, (2009). *Multicultural Diversity and Special education needs Education*. (A. Grünberger, M. Kyriazopoulou and V. Soriano, eds.). Odense, Denmark
- European Agency for Special education needs and Inclusive Education, (2016). *Raising the Achievement of All Learners in Inclusive Education – Literature Review*. (A. Kefallinou, ed.). Odense, Denmark
- Flecha, R. (ed.) (2015). *Successful Educational Actions for Inclusion and Social Cohesion in Europe*. Cham: Springer.
- Flem, A., Moen, T. & Gudmundsdottir, S. (2004). Towards inclusive schools: a study of inclusive education in practice. *European Journal of Special education needs Education*, 19(1):85-98.
- Florian L., & Black-Hawkin K., (2011): Exploring inclusive pedagogy. *British Educational Research Journal*, 37(5), 813-828
- Fluckiger, B., Dunn, J., Stinson, M., & Wheeley, E. (2017). *Leading age-appropriate pedagogies in the early years of school*. Department of Education and Training, Griffith Institute for Educational Research.

- Fullan, M. and Hargreaves, A. (2012). Reviving teaching with ‘professional capital’. *Education Week*, 31(33):30-36.
- Gyimah, C. K., Nketsia W. & Saloviita, T. (2016). *Teacher educators’ views on inclusive education and teacher preparation in Ghana* . International Journal of whole schooling 12(12) 1-8
- Grove, S. K., & Gray, J. R. (2018) *Understanding Nursing Research: Building an Evidence-Based Practice* (7<sup>th</sup> ed.). St. Louis: MO: Elsevier Saunders
- Gathumbi, A., Ayot, H., Kimemia, J. & Ondigi, S. (2015). Teachers’ and school administrators’ preparedness in handling students with special education needs in inclusive education in Kenya. *Journal of Education and Practice*, 6(24): 129 – 138.
- Ghana Statistical Service (2021). *2021 Population and Housing Census*. Ghana Statistical Service. Accessed on 10/08/2023 at [https://stats.ghana.gov.gh/gssmain/fileUpload/press\\_release/2021%20PHC%20Provisional%20Results%20Press%20Release.pdf](https://stats.ghana.gov.gh/gssmain/fileUpload/press_release/2021%20PHC%20Provisional%20Results%20Press%20Release.pdf)
- Godisa (2009). “Godisa – Technologies for a developing world”. Retrieved on 20/11/2023 from <http://www.godisa.org/>.
- Grönlund, A., Lim, N. & Larsson, H. (2010). Effective Use of Assistive Technologies for Inclusive Education in Developing Countries: Issues and challenges from two case studies. *International Journal of Education and Development using Information and Communication Technology*, 6 (4):5-26.
- Hairon, S., Loh, S. H., Lim, S. P., Govindani, S. N., Tan, J. K. T., & Tay, E. C. J. (2019). Structured mentoring: Principles for effective mentoring. *Educational Research for*

*Policy and Practice*. Advance online publication. <https://doi.org/10.1007/s10671-019-09251-8>

Hattie, J. A. C. (2009). *Visible learning: A synthesis of over 800 meta-analyses relating to achievement*. London, UK & New York, NY: Routledge.

Hay, J. F., Smit, J. & Paulsen, M. (2001). Teacher preparedness for inclusive education. *South African Journal of Education*, 21(4):213-218.

Hector-Alexander, A. (2019). Inclusive curriculum design. Chapter 13. In: Technology and the curriculum: Summer 2019. EDUC5303G: Educational Technology and the Curriculum, during the Spring/Summer 2019 Term. Robert Power (ed). PressBooks.

Hsiao, F., Burgstahler, S., Johnson, T., Nuss, D. and Doherty, M. (2019). Promoting an accessible learning environment for students with disabilities via faculty development (Practice brief). *The Journal of Postsecondary Education and Disability*, 32(1):91-99.

Israel, G. D. (2009). *Determining sample size*. IFAS Extension, PEOD6. University of Florida.

Jeptanui, N. (2011). Efficiency in the use of instructional resources in public primary schools: A case of Kapseret Zone, Wareng District, Kenya. Master's thesis. Kenyatta University.

Joseph, D. A. (2015). *Knowledge and Preparedness of teachers in Ejisu-Juaben Municipality on Inclusive Education*. Master's thesis. Kwame Nkrumah University of Science and Technology, Kumasi.

- Kenya National Commission for UNESCO (2025). Early Childhood Care and Development. UNESCO. Retrieved from UNESCO Website
- Klibthong, S. (2012). Re-imagining inclusive education for young children: A kaleidoscope of Bourdieuan theoretization. *International Education Studies*, 5(4):71-79.
- Komabu-Pomeyie, Sefakor Grateful-Miranda Ama, (2020). *"The Challenges Of Inclusive Education Policy Implementation In Ghana: Stakeholders' Perspectives"*. Graduate College Dissertations and Theses. 1206. <https://scholarworks.uvm.edu/graddis/1206>.
- Kuller R, Mikellides B, Janssens J. (2009). Color, arousal, and Performanc – A comparison of three experiments. *Colour Res Appl*, 34(2):141-152.
- Kuroda, K., Kartika, D. and Kitamura, Y. (2017). *Implications for teacher training and support for inclusive education in Cambodia: An empirical case study in a developing country*. Disability and Education. JICA-RI Working Paper, JICA Research Institute.
- Kurth, J. A., Lyon, K. J., & Shogren, K. A. (2015). Supporting students with severe disabilities in inclusive schools: A descriptive account from schools implementing inclusive practices. *Research and Practice for Persons with Severe Disabilities*, 40(4), 261–274. <https://doi.org/10.1177/1540796915594160>.
- Kuyini A. B., & Desai, I. (2008). Providing instruction to students with special education needs in inclusive classrooms in Ghana: Issues and challenges. *International Journal of Whole schooling*, 4(1), 22-38.

- Landsberg, E. (2006). *Addressing barriers to learning: A South African Perspective*. Pretoria. Van Schaik
- Lin, P. Y., & Lin, Y. C. (2019). Understanding how teachers practise inclusive classroom assessment. *Studies in Educational Evaluation*, 63, 113–121. <https://doi.org/10.1016/j.stueduc.2019.08.002>.
- Lincoln, Y. S., & Guba, E. A. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage
- Lindsay, G. (2007). Educational psychology and the effectiveness of inclusive education/mainstreaming. *British Journal of Educational Psychology*, 77, 1 - 24.
- Llewellyn, B., Wayland, S. & Hindmarsh, G. (2016). *Disability and child sex abuse in institutionalized contexts*. Royal Commission into Institutionalized Responses to Child Sexual Abuse. Sydney, Australia.
- Lodico, M. G., Spaulding, D., & Voegtler, K. H. (2006). *Methods in Educational Study: From Theory to Practice*.
- Lomofsky, L. & Lazarus, S. (2001). First steps in the development of an inclusive education system. *Cambridge Journal of Education*, 31(3):303-317. <https://doi.org/10.1080/03057640120086585>
- Loreman, T., Deppeler, J., & Harvey, D. (2005). *Inclusive education: a practical guide to supporting diversity in the classroom*. London: Routledge Falmer.
- Luning, M. (2015). *Professional development for supporting teachers in implementing inclusive education: a case study of six schools in Butterworth and Duthwa Districts, Eastern Cape*. Master's thesis. University of South Africa.

- Makoelle, T. M. & Thwala, S. K. (2022). Teachers' preparation for the implementation of inclusive education in primary schools in Eswatini. Cambridge Scholars Publishing, UK.
- Mamah, V. (2006). Making Inclusion a reality in Ghana. The role of the University of Education, Winneba. *African Journal of Special Education Needs*. 4(2), 299-305.
- Mckenna, J. W., Solis, M., Brigham, F., & Adamson, R. (2019). The responsible inclusion of students receiving special education services for emotional disturbance: Unraveling the practice to research gap. *Behavior Modification*, 43(4), 587–611. <https://doi.org/10.1177/0145445518762398>.
- McLeskey, J., Billingsley, B., & Ziegler, D. (2018). Using high-leverage practices in teacher preparation to reduce the research-to-practice gap in inclusive settings. *Australasian Journal of Special and Inclusive Education*, 42(01), 3–16. <https://doi.org/10.1017/jsi.2018.3>.
- Mlolele G. M., Muteti C. & Mandila T. (2023) Teachers Training Towards Implementation of Inclusive Education in Public Primary Schools in Dodoma Region-Tanzania, *British Journal of Education*, 11(10): 33-45. <https://doi.org/10.37745/bje.2013/vol11n103345>
- Morgan, H. & Houghton, A-M. (2011). *Inclusive curriculum design in higher education: Considerations for effective practice across and within subject areas*. The Education Academy. <https://www.heacademy.ac.uk/knowledge-hub/inclusive-curriculum-design-higher-education>.

- Mubichakani, M. J. & Koros, C. S. (2014). The availability, adequacy and improvisation and the use of instructional resources for teaching Mathematics in secondary schools in West Pokot District. *Kenya Journal of Education and Practice*, 5(20).
- Mugambi, M. M. (2017). Approaches to inclusive education and implications for curriculum theory and practice. *International Journal of Humanities Social Sciences and Education*, 4(10): 92-106. <http://dx.doi.org/10.20431/2349-0381.0410013>.
- Mugenda, O. M & Mugenda, A.G. (2003). *Research methods: Quantitative and qualitative approaches*. Nairobi: Acts Press
- Mulinge, D. M. (2016). Teachers' perceptions towards inclusion of children with special educational needs into mainstream classrooms in Kenya. Master's thesis. University of Oslo.
- Mull, C. A., and Sitlington, P. L. (2003). The role of technology in the transition to postsecondary education of students with learning disabilities: A review of the literature. *The Journal of Special Education*, 37(1), 26-32.
- Murawski, W. W. (2006). Student outcomes in co-taught secondary English classes: how can we improve? *Reading and Writing Quarterly*, (22): 227-247. DOI: 10.1080/10573560500455703
- Naicker, J. (2008). *Educators' preparedness for inclusive education*. Master's thesis, University of Zululand.
- National Council for Curriculum and Assessment (2019). Kindergarten curriculum (KG 1 & 2). NaCCA, Ministry of Education.

- National Council for Special Education (2014). Children with special educational needs. Information booklet for parents. NSCE, Mill Street, Trim, Co Meath.
- Ngeru, N. W. (2015). *Influence of teacher characteristics on utilization of instructional resources in teaching number work in preschools in wetlands sub – county, Nairobi county*. Master's thesis, University of Nairobi.
- Ngure, W., Mwoma, T., Buna, Y. (2019). Examining the teachers use of instructional resources in teaching and learning reading with the grade three pupils in Nairobi County, Kenya. *European Journal of Education Studies*, 6(1):160-173.
- Nutbrown, C. & Clough, P. (2006). *Inclusion in the early years: Critical analyses and enabling narratives*. Sage Publications Ltd. <https://doi.org/10.4135/9781446212271>
- Nyavor, M. & Amaniampong, P. (2020). Factors influencing students' choice of assistive technologies in Ghana national inclusive basic school. *European Journal of Special Education Research*, 6(1):63-77. doi:10.5281/zenodo.3873753.]
- OECD (2025) Reducing inequalities by investing in early Childhood Education and care. Technical Amos. OECD Publishing. Retrieved from OECD
- Okongo, R. B., Ngao, G., Rop, N. K. & Nyongesa, W. J. (2015). Effect of availability of teaching and learning resources on the implementation of inclusive education in pre-school centers in Nyamira North Sub-County, Nyamira County, Kenya. *Journal of Education and Practice*, 6(35):132-141.
- Oliver, M. (1996.) *Understanding Disability: From Theory to Practice*. Basingstoke, UK: Macmillan

- Opoku-Agyemang, N. J. (2015). *Forward. In: Inclusive Education Policy*. Ministry of Education, Ghana.
- Opoku-Agyemang, N. (2008). *Make education inclusive and sustainable*. Accessed on 21/09/2023 at <https://www.seekapor.com/make-education-inclusive-and-sustainable-naana-opoku-agyemang/>
- Opoku-Nkoom & Ackah-Jnr., F. R. (2023). Investigating inclusive education in primary schools in Ghana: what inclusive cultures, environment, and practices support implementation? *Support for Learning*, 38(1):17-36.
- Opoku-Nkoom, I. & Dogbe, D. (2020) Examining pre-service teacher preparation for inclusive education in Ghana. *British Journal of Education Learning and Development Psychology*, 3, 1, 33–42.
- Oppong-Boateng, R. (2020). *Teachers' experiences with inclusive education in the Ashanti Region of Ghana*. Master's thesis. University of Manitoba, Winnipeg.
- Okoye, K. R. & Ifi, C. C. (2020). Lower basic education teachers' preparedness for the adoption of inclusive education in Nigeria. *African Journal of Educational Assessors*, 7(2).
- Owino, C. O. (2019). Determinants of teachers' preparedness towards implementation of inclusive education in lower grade primary schools in Awendo, Migori, Kenya. Master's thesis. Kenyatta University.
- Reed and Bowser (2005). *Etymology dictionary*. Accessed on 18/09/2023 from <http://dictionary.reference.com/>. New York, USA: Random House, Inc.

- Roiha, A. & Polso, J. (2021). *The 5-dimensional model: A tangible framework for differentiation*. Practical Assessment, Research, and Evaluation, volume 20.
- Rudiyati, S. (2014). Improving Skills of Candidate Teachers of Children with Visual Impairment as Sighted Guide. *Dewantara*, 2(1), 24-33.
- Sharma, U., & Nuttal, A. (2016). The impact of training on pre-service teacher attitudes, concerns, and efficacy towards inclusion. *Asia-Pacific Journal of Teacher Education*, 44(2)
- Sharma, U., Loreman, T., & Forlin, C. (2011). Measuring teacher efficacy to implement inclusive practices: An international validation. *Journal of Research in Special Educational Needs*, 12(1), 12-21.
- Snell, M. E., & Brown F. (2011, 7<sup>th</sup> ed.) *Instruction of students with Severe Disabilities*. Pearson Education Inc, Upper Saddle River, NJ.
- Tyagi, G. (2016). Role of teachers in inclusive education. *IJEAR*, 6(1), 115-116.
- Marshall G., (2005). *The purpose, design and administration of a questionnaire for data collection*. Radiography. 11(2) 131-136. <http://dio.org/10.1016/s.tadi.2004.09.001>
- Ulrich C. (2004). A place of their own: children and the physical environment. *Human Ecology*, 32(2):11-14.
- UNESCO (2003). *Overcoming exclusion through inclusive approaches in education*. A Challenge a Vision-Conceptual paper, Spain Paris:-UNESCO.
- UNESCO (1994). The Salamanca statement on principles policy and practice in Special Education Needs. *Proceedings of the World Conference on Special Education*

Needs. Retrieved on 23/09/2023 from  
[http://www.unesco.org/education/pdf/SALAMA\\_E.PDF](http://www.unesco.org/education/pdf/SALAMA_E.PDF)

UNESCO (2021). *Inclusion in early childhood care and education*. Brief on inclusion in education. UNESCO forum on inclusion and equity in education.

UNICEF (2022). *Children with disabilities*. New York, NY, 10017, USA

UNESCO International Bureau of Education (2006). *Ghana: Early childhood care and education programmes*. Retrieved on 23/09/2023 from  
<https://unesdoc.unesco.org/images/0014/001471/147192e.pdf>

Wargocki, P. Wyon, D. P. (2007). The effects of moderately raised classroom temperature and classroom ventilation rate on the performance of schoolwork by children (1257-RP). *HVAC & R Res*, 13(2):193e220.

Weber, R. K. (2006). *An identification of barrier to the integration of information technology as perceived by secondary education teacher education students*. PhD thesis. Georgia State University.

WHO (2009): "Assistive devices/technologies", accessed on 03/11/2023 at  
<http://www.who.int/disabilities/technology/en/>

Winter, E. and O'Raw, P. (2010). *Literature Review of the Principles and Practices relating to Inclusive Education for Children with Special Educational Needs*. The National Council for Special Education.

Wolf, S. J. (2020). "Me I don't really discuss anything with them": Parent and teacher perceptions of early childhood education and parent-teacher relationships in Ghana.

*International Journal of Educational Research*, 99.  
<https://doi.org/10.1016/j.ijer.2019.101525>.

Wolf, S. J., Aber, L. A., Behrman, J. R., & Tsinigo, E. (2019). Experimental impacts of the “quality preschool for Ghana” interventions on teacher professional well-being, classroom quality, and children’s school readiness. *Journal of Research on Educational Effectiveness*, 12(1), 10-37.  
<https://doi.10.1080/19345747.2018.1517199>.

Yadavalli, P. K. (2022). A critical review of the use of assistive technologies in the education of children with disabilities. *Journal of Positive School Psychology*, 6(6):1707-1718.

Yalcin, G. & Kamali A. T. (2020). Mentoring inservice teachers to support their inclusive science teaching practices for students with visual impairment *International Journal of Contemporary Educational Research*, 7(2), 112-131. DOI:  
<https://doi.org/10.33200/ijcer.741436>

Young, G. (2019). Examining the literature on assistive technology. Viden OM Literacy Nummer 26, Nationalt Videncenter for Læsning.

European Agency for Development in Special Needs Education EASNIE (2009). *Key Principles for Promoting Quality in Education - Recommendations for Policymakers*. Odense, Denmark: European Agency for Development in Special Needs Education. Amanda Watkins

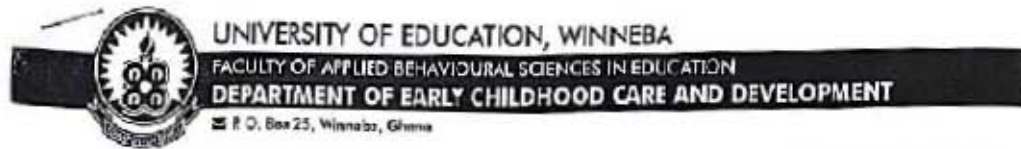
Kumekpor K. B. (2002). *Research Methods & techniques of social Research*. Ghana, Son life Printing Press and services.

- Sjoman, M., Granlund, M., & Almqvist, L. (2016). Interaction processes as a mediating factor between children externalized behaviors difficulties and engagement in preschool. *Early child development and Care*. 186 (10)
- Thomas, L. (2023). *Simple Random Sampling /determining steps &examples*. Scribbr.
- Yorke, K. A. (2012). *A comparative study of early childhood education in selected public and private pre-schools in Kumasi*. Master's thesis, Kwame Nkrumah University of Science and Technology, Kumasi.
- Yozgatli, M. (2022). *Inclusive practices in teacher education programs*. Theses and Dissertations--Early Childhood, Special Education, and Counselor Education. 127. [https://uknowledge.uky.edu/edsr\\_etds/127](https://uknowledge.uky.edu/edsr_etds/127).
- Yusta, N., Karugu, G., Muthee, J. & Tekle, T. (2016). Impact of instructional resources on mathematics performance of learners with Dyscalculia in integrated primary school, Arusha City, Tanzania. *Journal of Education & Practice*, 7(3):12-18.
- Zakaria, A., Bashiru, M. & Iddrisu, S. (2018). Special Education Teachers Use of Assistive Technology in Educating Students with Special education needs in Northern Region-Ghana. *Africa Development and Resources Research Institute Journal, Ghana*, 27, 6(4): 74-92.
- Zeisel J, Silverstein NM, Hyde J, Levkoff S, Lawton MP, Holmes W. (2003). Environmental correlates to behavioral health outcomes in Alzheimer's special care units. *Gerontologist*; 43(5):697-711.
- Zulu, P. D. (2014). *Preparedness of the mainstream primary school teachers in implementing inclusive education policy in Nongoma Circuit, KwaZulu-Natal*. Master's thesis, University of South Africa.



## APPENDICES

### APPENDIX A: INTRODUCTORY LETTER FROM THE UNIVERSITY OF EDUCATION, WINNEBA



FADSE/DECEM.1

7<sup>th</sup> December, 2023

The Director  
Ghana Education Service  
Nanton District Education  
P.O. Box 1  
Nanton District

Dear Sir/ Madam,

#### INTRODUCTORY LETTER

I kindly write to introduce to you Mr. Albassan Elijah with index number: 220031303 who is an M.Phil. student at the Department of Early Childhood Care and Development, University of Education, Winneba. He is in his final year and has to embark on his thesis on the topic: *"Assessment of Teacher Preparation in Teaching Learners with Special Needs in Early Childhood Centres in the Nanton District"*.

Mr. Albassan Elijah is to collect data for his thesis, and I would be most grateful if he could be given the needed assistance.

Thank you.

Yours faithfully,

A handwritten signature in blue ink, appearing to read 'Dr. Michael Surrby'.

DR. MICHAEL SURRBY  
HEAD OF DEPARTMENT



[www.uew.edu.gh](http://www.uew.edu.gh)

**Appendix B: LETTER OF PERMISSION TO COLLECT DATA FROM THE  
DISTRICT DIRECTOR OF EDUCATION OF NANTON DISTRICT TO THE  
RESEARCHER**

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

Our Ref: GES/IN/DEO/RSC/VOL.1/12  
Your Ref:



Republic of Ghana

District Education Office,  
Post Office Box 1,  
Nanton.  
Northern Region.  
GPS: NU-1634-7301

E-mail: nanton.ded@ges.gov.gh  
Date: 11<sup>th</sup> December, 2023.

**PERMISSION TO COLLECT DATA**

Following your request to collect data from kindergarten schools, teachers, headteachers and some selected officers at the Directorate, I wish to inform you that, permission have been granted you to proceed with the data collection to enable you 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.

A handwritten signature in black ink, appearing to read 'M. Mumuni Adams'.

MOHAMMED MUMUNI ADAMS  
DISTRICT DIRECTOR

MR. ALHASSAN ELIJAH  
DISTRICT EDUCATION OFFICE  
NANTON

## **APPENDIX C: INTERVIEW GUIDE/PROTOCOL FOR OFFICERS**

### **UNIVERSITY OF EDUCATION, WINNEBA**

#### **FACULTY OF APPLIED BEHAVIOURAL SCIENCES IN EDUCATION**

#### **DEPARTMENT OF EARLY CHILDHOOD CARE AND DEVELOPMENT**

#### **INTERVIEW GUIDE/PROTOCOL FOR HEAD TEACHERS AND OFFICERS**

#### **ASSESSMENT OF TEACHER PREPAREDNESS IN TEACHING LEARNERS WITH SPECIAL EDUCATION NEEDS IN EARLY CHILDHOOD CENTERS IN THE NANTON DISTRICT**

Good morning/Good day,

I want to sincerely thank you for agreeing to participate in this interview. This interview is part of the data collection process of a study I am undertaking as a student in the Department of Early childhood education, University of Education, Winneba in partial fulfillment for the award of Master of Philosophy in Early Childhood Education.

The main purpose of the interview is to understand the specific strategies employed by teachers when teaching children with special education needs in early childhood settings in the Nanton District.

Please, be rest assured that the responses you will provide to questions in this interview will be treated with utmost **confidentiality** and will be used only for the purpose of this study.

#### **Background Information**

1. Could you please tell me your age?
2. What is your level of education?
3. What is your professional qualification?
4. How long have you been in the district?
5. What is your role?

#### **Exploring Teaching Strategies for Children with Special education needs**

1. How do your teachers differentiate teaching to meet the diverse learning needs of children with special education needs in their classroom?
2. How do your teachers incorporate visual aids and assistive technologies to enhance the learning experiences of children with special education needs?
3. In what ways do your teachers adapt traditional teaching materials to accommodate the various learning styles and abilities of children with special education needs?
4. How do your teachers provide additional support, such as one-on-one assistance or small group instruction, for children with special education needs?

5. How do your teachers promote inclusive practices, such as peer collaboration and cooperative learning, in their classroom?
6. How do your teachers collaborate with special education professionals to develop and implement individualized education plans (IEPs) for children with special education needs?
7. How do your teachers create a supportive and inclusive classroom environment that fosters a sense of belonging for all children, including those with special education needs?
8. How do your teachers use positive reinforcement and behaviour management strategies to foster a positive learning environment for children with special education needs?

### **Integrating Instructional Resources for Early Childhood Learners with Special education needs**

1. How do your teachers incorporate various instructional materials to cater to the varied learning needs of early childhood learners with special education needs?
2. How do your teachers incorporate assistive technologies to enhance the learning experiences of early childhood learners with special education needs?
3. In what ways do your teachers modify traditional instructional resources, such as textbooks and workbooks, to make them accessible for early childhood learners with special education needs?
4. How do your teachers use specialized tools and equipment to support early childhood learners with special education needs in their classroom activities?
5. How do your teachers use visual aids and prompts in your instructional practices to support early childhood learners with attention-related challenges or learning disabilities?
6. How do your teachers collaborate with educational specialists to identify and integrate suitable instructional resources for early childhood learners with diverse needs?
7. How do your teachers integrate adaptive technology tools, such as screen readers or speech-to-text software, into their instructional practices for early childhood learners with special education needs?
8. How do your teachers ensure that instructional resources used in their classroom are culturally relevant and inclusive for early childhood learners with special education needs?
9. How do your teachers assess the effectiveness of instructional resources in meeting the individualized needs of early childhood learners with special education needs?

### **Modifications in Instructional and Assessment Materials for Learners with Special education needs**

1. How do your teachers modify the format of instructional materials, such as font size or color contrast, to enhance accessibility for learners with visual impairments?
2. Do your teachers adjust instructional materials, such as providing audio versions or transcripts, to support learners with auditory processing challenges?
3. How do your teachers differentiate assignments and instructional content to address the diverse learning styles of learners with special education needs?
4. In what ways do your teachers incorporate tactile elements into instructional materials to benefit learners with sensory processing challenges?
5. How do your teachers provide alternative assessment formats, such as extended time or different testing methods, to accommodate learners with diverse needs?
6. How do your teachers use visual aids and prompts in assessments to support learners with attention-related challenges or learning disabilities?
7. In what ways do your teachers adjust the instructions in assessment materials to ensure clear and concise communication, especially for learners with language-related difficulties?
8. How do your teachers offer flexibility in assignment deadlines to accommodate the varying processing speeds of learners with special education needs?
9. Have your teachers participated in professional development opportunities focused on creating and adapting instructional and assessment materials for learners with special education needs?" describe it.
10. How do your teachers reflect on the effectiveness of modifications in instructional and assessment materials? Do they seek feedback from learners with special education needs?

### **Physical and Environmental Accommodations for Inclusive Learning**

1. How do physical accommodations, such as wheelchair ramps and accessible entrances, contribute to the overall inclusivity of the early childhood center?
2. In what ways do adjustable furniture and seating arrangements contribute to the physical comfort and accessibility of all learners?
3. How is the classroom layout designed to facilitate easy movement for learners with physical disabilities, promoting an inclusive and barrier-free environment?
4. How does the availability of designated quiet spaces and sensory breaks contribute to the emotional well-being of learners with special education needs?
5. How do noise reduction measures, such as using soft materials or sound-absorbing elements, create a more conducive learning environment for children with auditory sensitivities?
6. In what ways are visual cues and signage strategically placed to assist learners with navigation and orientation in the early childhood center?

7. How does the environment consider the diverse cultural and sensory needs of learners, minimizing distractions and supporting focus?
8. Do teachers involve learners in the arrangement and design of the learning environment to ensure it meets their diverse needs?
9. How do your teachers assess the impact of physical and environmental accommodations on creating an inclusive learning environment?
10. How do your teachers seek feedback from learners, parents, or colleagues regarding the effectiveness of physical and environmental accommodations?

Thank you for spending part of your precious time to answer my questions. I would be glad to receive any additional thoughts or experiences you have with respect to professional development for teaching learners with special education needs in the Nanton District.

Thank you once again. Your responses are greatly appreciated.



## **APPENDIX D: QUESTIONNAIRE FOR TEACHERS**

UNIVERSITY OF EDUCATION, WINNEBA

FACULTY OF APPLIED BEHAVIOURAL SCIENCES IN EDUCATION

DEPARTMENT OF EARLY CHILDHOOD CARE AND DEVELOPMENT

### **QUESTIONNAIRE FOR TEACHERS**

#### **ASSESSMENT OF TEACHER PREPAREDNESS IN TEACHING LEARNERS WITH SPECIAL EDUCATION NEEDS IN EARLY CHILDHOOD CENTERS IN THE NANTON DISTRICT**

My name is **ALHASSAN ELIJAH**, a Master of Philosophy student at the Department of Early Childhood Education of the Faculty of Education Studies, University of Education, Winneba. I am conducting a study on the above topic in partial fulfillment of the requirements for the award of Master of Philosophy in Early Childhood Education.

I would like to kindly seek your consent to participate in answering the following questionnaire. The information you will provide in this questionnaire will be used solely for the purpose of this study. Please answer each question as honestly and frankly as possible.

All responses given out in this questionnaire will be treated with utmost **CONFIDENTIALITY**. No personal details of any respondent will be mentioned in the findings nor will any of the results be related to any teacher or school.

#### **STATEMENT OF CONSENT**

I have read the information contained in this questionnaire and has accepted to participate voluntarily in the study.

DATE: ..... SIGNATURE: .....

#### **DEMOGRAPHIC CHARACTERISTICS OF RESPONDENTS**

Age: ..... Gender: .....

Qualification: .....

Role/Schedule: .....

Number of years in the role: .....

Number of years in the Nanton district: .....

#### **KNOWLEDGE OF INCLUSIVE EDUCATION**

1. Have you attended any training on inclusive education and the inclusive education policy in the past? Yes [ ☐ ] No [ ☐ ]

2. Which of the following have you been trained on or have fair idea about? Please tick the appropriate boxes.

I. Learners with special education needs [    ]

II. Differentiated learning [    ]

III. Scaffolding [    ]

IV. Collaborative learning [    ]

V. Cooperative learning [    ]

VI. Peer teaching [    ]

#### **SECTION A: Teacher strategies for children with special education needs**

**Please kindly tick the option that best explains your views on teacher strategies for teaching children with special education needs in early childhood centres in the Nanton District**

| QUESTION                                                                                                                                                                 | RESPONSE |   |   |    |     |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---|---|----|-----|
|                                                                                                                                                                          | SA       | A | N | DA | SDA |
| 1. I utilize differentiated instruction to meet the diverse learning needs of children with special education needs                                                      |          |   |   |    |     |
| 2. I regularly use visual aids and assistive technologies to enhance the learning experiences of children with special education needs                                   |          |   |   |    |     |
| 3. I adapt my teaching materials to accommodate the various learning styles and abilities of children with special education needs                                       |          |   |   |    |     |
| 4. I provide additional support, such as one-on-one assistance or small group instruction, for children with special education needs                                     |          |   |   |    |     |
| 5. I employ inclusive teaching practices, such as peer collaboration and cooperative learning in my classroom                                                            |          |   |   |    |     |
| 6. I routinely collaborate with special education professionals to develop and implement individualized education plans (IEPs) for children with special education needs |          |   |   |    |     |
| 7. I create a supportive and inclusive classroom environment by promoting a sense of belonging for all children, including those with special education needs.           |          |   |   |    |     |
| 8. I use positive reinforcement and behavior management strategies to foster a positive                                                                                  |          |   |   |    |     |

|                                                                                                                                                         |  |  |  |  |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| learning environment for children with special education needs.                                                                                         |  |  |  |  |  |
| 9. I regularly assess the individual progress and learning outcomes of children with special education needs to tailor their instructional approaches.  |  |  |  |  |  |
| 10. I employ sensory-friendly approaches to accommodate the sensory needs of children with special education needs in the classroom.                    |  |  |  |  |  |
| 11. I use flexible grouping strategies to ensure that children with special education needs have opportunities for social interaction and peer support. |  |  |  |  |  |
| 12. I engage in ongoing professional development to enhance their knowledge and skills in effectively teaching children with special education needs.   |  |  |  |  |  |

**SA-strongly agree; A-agree; N-neutral; DA-disagree; SDA-strongly disagree**

### **SECTION B: Integration of Instructional Resources for Early Childhood Learners with Special education needs**

**Please kindly tick the option that best explains your views on teachers' integration of instructional resources for early childhood learners with special education needs in early childhood centers in the Nanton District**

| QUESTION                                                                                                                                                                           | RESPONSE |   |   |    |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---|---|----|-----|
|                                                                                                                                                                                    | SA       | A | N | DA | SDA |
| 1. I incorporate diverse instructional materials to cater to the varied learning needs of early childhood learners with special education needs.                                   |          |   |   |    |     |
| 2. I regularly use a wide range of assistive technologies to enhance the learning experiences of early childhood learners with special education needs.                            |          |   |   |    |     |
| 3. I adapt traditional instructional resources, such as textbooks and workbooks, to make them accessible and beneficial for early childhood learners with special education needs. |          |   |   |    |     |
| 4. Specialized tools and equipment are readily available and I integrate them into classroom activities for the benefit of early childhood learners with special education needs.  |          |   |   |    |     |

|                                                                                                                                                                                                     |  |  |  |  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| 5. I use visual aids, such as charts, diagrams, and images, to support the understanding of early childhood learners with special education needs.                                                  |  |  |  |  |  |
| 6. I collaborate with educational specialists to identify and integrate suitable instructional resources for early childhood learners with diverse needs.                                           |  |  |  |  |  |
| 7. I integrate Adaptive technology tools, such as screen readers or speech-to-text software into instructional practices for early childhood learners with special education needs.                 |  |  |  |  |  |
| 8. I actively seek and utilize culturally relevant instructional resources to create an inclusive learning environment for early childhood learners with special education needs.                   |  |  |  |  |  |
| 9. I employ differentiated instructional strategies to match instructional resources with the varied learning styles and abilities of early childhood learners with special education needs.        |  |  |  |  |  |
| 10. I consistently evaluate the effectiveness of instructional resources in meeting the individualized needs of early childhood learners with special education needs.                              |  |  |  |  |  |
| 11. I facilitate hands-on learning experiences and interactive activities using a variety of instructional resources for early childhood learners with special education needs.                     |  |  |  |  |  |
| 12. I take advantage of professional development opportunities to enhance my knowledge and skills in integrating instructional resources for early childhood learners with special education needs. |  |  |  |  |  |

SA-strongly agree; A-agree; N-neutral; DA-disagree; SDA-strongly disagree

### SECTION C: Modifications in instructional and assessment materials for learners with special education needs

Please kindly tick the option that best explains your views on teachers' modification of instructional and assessment materials for learners with special education needs in early childhood centers in the Nanton District.

| QUESTION | RESPONSE |   |   |    |     |
|----------|----------|---|---|----|-----|
|          | SA       | A | N | DA | SDA |

|                                                                                                                                                                        |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| 1. I modify the format of instructional materials (e.g., font size, color contrast) to enhance accessibility for learners with visual impairments.                     |  |  |  |  |  |
| 2. Adjustments in instructional materials, such as providing audio versions or transcripts, are commonly made to support learners with auditory processing challenges. |  |  |  |  |  |
| 3. I frequently differentiate assignments and instructional content to address the diverse learning styles of learners with special education needs.                   |  |  |  |  |  |
| 4. Modifications in assessment formats (e.g., extended time, alternative testing methods) are regularly provided to accommodate learners with diverse needs.           |  |  |  |  |  |
| 5. I use visual aids and prompts in assessments to support learners with attention-related challenges or learning disabilities.                                        |  |  |  |  |  |
| 6. Assessment materials are adjusted to include clear and concise instructions, facilitating understanding for learners with language-related difficulties.            |  |  |  |  |  |
| 7. I regularly provide alternative assessment options, allowing learners with special education needs to demonstrate understanding through varied means.               |  |  |  |  |  |
| 8. I make modifications in instructional materials to incorporate tactile elements, benefiting learners with sensory processing challenges.                            |  |  |  |  |  |
| 9. I frequently adjust the pacing of instructional materials to accommodate learners who may require additional time to process information.                           |  |  |  |  |  |
| 10. I regularly offer flexibility in assignment deadlines to accommodate the varying processing speeds of learners with special education needs.                       |  |  |  |  |  |
| 11. Assessment materials are designed to allow for multiple means of expression, providing options for learners with diverse communication abilities.                  |  |  |  |  |  |
| 12. I use feedback from learners with special education needs to inform ongoing modifications in instructional and assessment materials.                               |  |  |  |  |  |

**SA-strongly agree; A-agree; N-neutral; DA-disagree; SDA-strongly disagree**

**SECTION D: Physical and environmental accommodations for inclusive learning**

**Please kindly tick the option that best explains your views on the physical and environmental accommodations for inclusive learning in early childhood centers in the Nanton District.**

| QUESTION                                                                                                                                                                           | RESPONSE |   |   |    |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---|---|----|-----|
|                                                                                                                                                                                    | SA       | A | N | DA | SDA |
| 1. Physical accommodations, such as wheelchair ramps and accessible entrances, have been made to contribute to the overall inclusivity of early childhood centers.                 |          |   |   |    |     |
| 2. Environmental modifications, such as sensory-friendly classrooms are there to enhance the learning experiences of children with sensory processing challenges.                  |          |   |   |    |     |
| 3. Adjustable furniture is available and seating arrangements are made to contribute to the physical comfort and accessibility of all learners.                                    |          |   |   |    |     |
| 4. Classroom layouts are designed to facilitate easy movement for learners with physical disabilities, promoting an inclusive and barrier-free environment.                        |          |   |   |    |     |
| 5. Environmental accommodations, such as noise reduction measures have been put in place to create a more conducive learning environment for children with auditory sensitivities. |          |   |   |    |     |
| 6. Designated quiet spaces and sensory breaks have been created to contribute to the emotional well-being of learners with special education needs.                                |          |   |   |    |     |
| 7. Visual cues and signage are strategically placed to assist learners with navigation and orientation problems in the early childhood center.                                     |          |   |   |    |     |
| 8. Physical accommodations, such as accessible restrooms and changing facilities, are there to ensure the dignity and independence of all learners.                                |          |   |   |    |     |
| 9. Classroom materials and resources are organized in a way that supports easy access for                                                                                          |          |   |   |    |     |

|                                                                                                                                                            |  |  |  |  |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|
| all learners, including those with mobility challenges.                                                                                                    |  |  |  |  |  |
| 10. Assistive technologies and devices are available to enhance the learning experiences and participation of learners with diverse needs.                 |  |  |  |  |  |
| 11. Environmental accommodations have been made taking into account the diverse sensory needs of learners to help minimize distractions and support focus. |  |  |  |  |  |
| 12. I actively involve learners in the arrangement and design of the learning environment to ensure it meets their diverse needs.                          |  |  |  |  |  |

**SA-strongly agree; A-agree; N-neutral; DA-disagree; SDA-strongly disagree**



**APPENDIX E: OBSERVATION SHEET**

|                                                                                                                                                                       |                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| <p align="center"><b>TEACHER PREPAREDNESS FOR TEACHING LEARNERS WITH SPECIAL EDUCATION NEEDS</b></p> <p align="center"><b>SCHOOL/CLASSROOM OBSERVATION SHEET</b></p>  |                                              |
| Observer:.....<br>School:.....<br>Class:.....                                                                                                                         | Date: .....<br>Time: Start .....<br>End..... |
| <b>ITEM TO BE OBSERVED</b>                                                                                                                                            | <b>REMARK</b>                                |
| <b>A. Knowledge and use of variety of teaching strategies to meet learning needs of learners with special education needs</b>                                         |                                              |
| 1. Teachers differentiate instruction to accommodate the needs of learners with special education needs                                                               |                                              |
| 2. Visual aids and assistive technologies are used to enhance the learning experience for children with special education needs                                       |                                              |
| 3. Teachers adapt their teaching materials to accommodate the various learning styles and abilities of children with special education needs.                         |                                              |
| 4. Teachers provide additional support, such as one-on-one assistance or small group instruction, for children with special education needs.                          |                                              |
| 5. Inclusive teaching practices, such as peer collaboration and cooperative learning, are employed by teachers in early childhood settings.                           |                                              |
| 6. Teachers create a supportive and inclusive classroom environment by promoting a sense of belonging for all children, including those with special education needs. |                                              |

|                                                                                                                                                                                                   |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 7. Teachers use positive reinforcement and behavior management strategies to foster a positive learning environment for children with special education needs.                                    |  |
| 8. Teachers regularly assess the individual progress and learning outcomes of children with special education needs to tailor their instructional approaches                                      |  |
| 9. Teachers employ sensory-friendly approaches to accommodate the sensory needs of children with special education needs in the classroom                                                         |  |
| 10. Teachers use flexible grouping strategies to ensure that children with special education needs have opportunities for social interaction and peer support.                                    |  |
| <b>B. Utilization of instructional resources</b>                                                                                                                                                  |  |
| 1. Teachers selectively incorporate diverse instructional materials to cater to the varied learning needs of early childhood learners with special education needs.                               |  |
| 2. Assistive technologies are regularly utilized by teachers to enhance the learning experiences of early childhood learners with special education needs.                                        |  |
| 3. Teachers adapt traditional instructional resources, such as textbooks and workbooks, to make them accessible and beneficial for early childhood learners with special education needs.         |  |
| 4. Specialized tools and equipment are readily available and integrated into classroom activities for the benefit of early childhood learners with special education needs.                       |  |
| 5. Teachers effectively use visual aids, such as charts, diagrams, and images, to support the understanding of early childhood learners with special education needs.                             |  |
| 6. Adaptive technology tools, such as screen readers or speech-to-text software, are seamlessly integrated into instructional practices for early childhood learners with special education needs |  |

|                                                                                                                                                                                                 |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 7. Teachers actively seek and utilize culturally relevant instructional resources to create an inclusive learning environment for early childhood learners with special education needs.        |  |
| 8. Differentiated instructional strategies are employed to match instructional resources with the varied learning styles and abilities of early childhood learners with special education needs |  |
| 9. Teachers evaluate the effectiveness of instructional resources in meeting the individualized needs of early childhood learners with special education needs                                  |  |
| 10. Teachers facilitate hands-on learning experiences and interactive activities using a variety of instructional resources for early childhood learners with special education needs           |  |
| <b>C. Modifications in Instructional and Assessment Materials for Learners with Special education needs</b>                                                                                     |  |
| 1. Teachers modify the format of instructional materials (e.g., font size, color contrast) to enhance accessibility for learners with visual impairments                                        |  |
| 2. Adjustments in instructional materials, such as providing audio versions or transcripts, are commonly made to support learners with auditory processing challenges                           |  |
| 3. Teachers frequently differentiate assignments and instructional content to address the diverse learning styles of learners with special education needs                                      |  |
| 4. Modifications in assessment formats (e.g., extended time, alternative testing methods) are regularly provided to accommodate learners with diverse needs                                     |  |
| 5. Teachers commonly use visual aids and prompts in assessments to support learners with attention-related challenges or learning disabilities                                                  |  |
| 6. Assessment materials are adjusted to include clear and concise instructions, facilitating understanding for learners with language-related difficulties                                      |  |

|                                                                                                                                                                |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 7. Teachers provide alternative assessment options, allowing learners with special education needs to demonstrate understanding through varied means           |  |
| 8. Modifications in instructional materials are made to incorporate tactile elements, benefiting learners with sensory processing challenges                   |  |
| 9. Teachers adjust the pacing of instructional materials to accommodate learners who may require additional time to process information                        |  |
| 10. Assessment materials are designed to allow for multiple means of expression, providing options for learners with diverse communication abilities           |  |
| <b>D. Physical and Environmental Accommodations for Inclusive Learning</b>                                                                                     |  |
| 1. Physical accommodations, such as wheelchair ramps and accessible entrances, contribute to the overall inclusivity of early childhood centers                |  |
| 2. Environmental modifications, such as sensory-friendly classrooms, positively impact the learning experiences of children with sensory processing challenges |  |
| 3. The availability of adjustable furniture and seating arrangements contributes to the physical comfort and accessibility of all learners                     |  |
| 4. Classroom layouts are designed to facilitate easy movement for learners with physical disabilities, promoting an inclusive and barrier-free environment     |  |
| 5. Environmental accommodations, such as noise reduction measures, create a more conducive learning environment for children with auditory sensitivities       |  |
| 6. The availability of designated quiet spaces and sensory breaks contributes to the emotional well-being of learners with special education needs             |  |

|                                                                                                                                                  |  |
|--------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 7. Visual cues and signage are strategically placed to assist learners with navigation and orientation in the early childhood center             |  |
| 8. Physical accommodations, such as accessible restrooms and changing facilities, ensure the dignity and independence of all learners            |  |
| 9. Classroom materials and resources are organized in a way that supports easy access for all learners, including those with mobility challenges |  |
| 10. The availability of assistive technologies and devices enhances the learning experiences and participation of learners with diverse needs    |  |

