KWARA STATE UNIVERSITY, MALETE, NIGERIA
SCHOOL OF POSTGRADUATE STUDIES (SPGS)

TEACHERS' KNOWLEDGE AND ASSESSMENT METHODS OF PUPILS WITH DYSLEXIA AND DYSGRAPHIA IN ILORIN WEST LOCAL GOVERNMENT AREA, KWARA STATE

Rafiat Arike MUSTAPHA

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Rafiat Arike MUSTAPHA

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DECLARATION

I hereby declare that this thesis titled "Teachers' Knowledge and Assessment Methods of Pupils with Dyslexia and Dysgraphia in Ilorin West Local Government Area of Kwara State" is a record of my research. It has neither been presented nor accepted in any previous application for a higher degree.

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Rafiat Arike MUSTAPHA **Signature /** Date

APPROVAL

This is to certify that this thesis by Rafiat Arike MUSTAPHA has been read and approved as meeting part of the requirements of the Department of Early Childhood and Primary Education, Faculty of Eucation Kwara State University, Malete, for the award of the degree of Masters (M.Ed.), in Early Childhood Education

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DEDICATION

This thesis is dedicated to Almighty Allah for His mercy and protection.

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Abstract

Learning disability is a group of heterogeneous disorder and neurologically-based processing problem which can interfere with learning basic skills such as reading, writing and/or mathematical calculation. This has been a source of concern to all stakeholders in education more especially. Therefore, the study examined the teachers' knowledge and assessment methods of Pupils with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State. In this study descriptive survey research design was adopted in the study to investigate teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia. The population of this study comprised all the primary schools teachers in Ilorin West Local Government Area of Kwara State. The total number of 29 schools were used as sample using proportional sampling. Proportional sampling techniques were used to select 10% of the population. A sample size of twenty nine (29) schools were randomly selected with ten teachers from each school. This study used two research instruments which are: teachers' knowledge of dyslexia and dysgraphia test (TKDDT), Teachers' Assessment Methods of Dyslexia and Dysgraphia rating scale (TAMDDRS). Two research questions were raised with eight research hypotheses. Face and content validity were employed on the instruments by the researcher. Copies of the instruments were given to five experts in Early Childhood education in the Faculty of Education, Kwara State University.A pilot study was conducted to ascertain the reliability of the instruments, test re-test method of reliability was used for the first instrument. The researcher administered twenty five copies of the instruments to teachers selected from a school that are not respondents in this study at the interval of two weeks. Pearsons Product Moment Correlation (PPMC) were used to determine the reliability coefficient of the instruments and reliabilities were 0.82 and 0.74. The researcher obtained a letter of introduction from the department of early childhood and primary education, Kwara State University which was tendered to the head teachers of the schools selected for the permission to administer questionnaires and as well as the test questions, the researcher trained three research assistant on how to administer and retrieve the instrument in three days. The data collected were analyzed using descriptive statistics of mean, standard deviation, percentage, frequency count. While Analysis of variance ANOVA and independent sample t-test was used to test the null hypotheses at 0.05 level of significance. Findings showed that the level of teachers' knowledge of pupils with dyslexia was low, the level of teachers' knowledge of pupils with

dysgraphia was low , one-on-one was the most commonly adopted method of assessing pupils with dyslexia and Paper and Pencil was the most commonly adopted method of assessing pupils with dyslexia in Ilorin West Local Government Area of Kwara State. Based on the findings of the study. It can be established that teachers' knowledge of dyslexia and dysgraphia were low. Finally, recommendation were made, Teachers should be given boundless opportunities on knowledge of inclusive educations, especially on pupils' with learning disabilities through, self-development, symposium and seminars.

Key words: Teachers' Knowledge, Assessment Methods, Dyslexia and Dysgraphia

Word count: 494

CHAPTER ONE

INTRODUCTION

Background to the Study

Learning disability is a group of heterogeneous disorder and neurologically-based processing problem which can interfere with learning basic skills such as reading, writing and/or mathematical calculation. Individuals with Learning Disabilities have differing capabilities, with difficulties in certain academic areas but not in others. Learning disabilities have an effect on either input the brain's ability to process incoming information or output the person's ability to use information in practical skills, such as reading, math, spelling.

.The International Dyslexia Association (2003), emphasized that without appropriate intervention, dyslexics have a higher probability of not completing primary schools. Their dreams are shattered and opportunities are lost. However, studies reveals that with appropriate interventions, children with dyslexia can overcome, to some extent, their reading and writing, spelling and mathematical problems (Polit & Beck,2004)

Dysgraphia is a Greek word. The base word '*graph*' refers both to the hand's function in writing and to the letters formed by the hand. The prefix '*dys'* indicates that there is impairment. Graph refers to producing letter forms by hand. The suffix '*ia*' refers to having a condition. Thus, dysgraphia is the

condition of impaired letter writing by hand, that is, disabled handwriting and sometimes spelling. Impaired handwriting can interfere with learning to spell words in writing. Occasionally children having just spelling problems may not have handwriting or reading problems Planton (2013). (Nicoloson & Fawett, 2011), stated that dysgraphia constitutes a written expression disorder, which results into writing skills lower than expected for the age, related to legibility, letter training quality, alignment and spacing of letters and words, dimensioning of letters) and low speed (production rate).

They may affect the acquisition, organization, retention, understanding or use of verbal or non-verbal information (Putting Canadian Face on Learning Disabilities (PACFOLD), 2016). According to Russell, (2017), it significantly reduced ability to understand new or complex information, to learn new skills with reduced ability to cope independently which started before adulthood with a lasting effect on development. In other words, learning disability may be regarded as a condition that affects an individual's ability in the area of spoken or written language, mathematical calculation and coordination of movement.

It is reported that 80% of pupils who need special education suffer from dyslexia and dysgraphia (National Center for Statistics, 2008). Demir (2005) reported that, according to parent surveys, 33% of the pupils' in first grade were at risk for dyslexia and dysgraphia. On the other hand, first grade teachers indicated that 25% of first grade pupils' displayed increased difficulties while learning to read and write (Demir, 2005). Research has shown that with the help of a teacher who provides appropriate reading instruction, pupils' with dyslexia may have better academic success

(Bos *et al.,* 2001; Hornstra *et al.,* 2010; Moats, 2009; Moats & Foorman, 2003; Rubin, 2002; Snow *et al.,* 1998). It is also reported that the reading achievement of dyslexic students, in particular, is affected by their teachers' knowledge and capabilities (Gwernan-Jones & Burden, 2010; Hellendoorn & Ruijssenaars, 2000; Lane et al., 2009; Mills, 2006; Rubin, 2002).The researcher intends to make findings on teaches' knowledge and assessment methods of pupils' with dyslexia and dysgraphia.

Dyslexia is widely recognized as the most common learning disability of neurological origin. It is often referred to as a specific learning difficulty because the dyslexic individual also has strength and areas of ability which when properly channeled make for success (Sutton & Shield, 2016). International Dyslexia Association (IDA, 2002) sees dyslexia as being neurological in nature, characterized by difficulties with accurate and/or fluent word recognition and poor spelling and decoding abilities which result from phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction.Children with dyslexia cannot be separated from their Parents, irrespective of their financial background. That is, their enrolment cannot be done by themselves, despite the advocacy for free education for all by the federal government and implemented through the UBE scheme, rather by each individual parent/Guardian. Dyslexia a non- Syndromic condition of neuro-developmental disorder (Chloe 2012). It is one of the forms of learning disability that is

unexpected with the Child's age and ability, as it brings about mismatch between the child's ability and academic performance.

International and national studies have reported that dysgraphia may be present in school children with and without learning disabilities, learning disorders and dyslexia. In cases of learning disorders, the school children present the following skills systematically and recurrently altered, such as: identification or decoding of words, pseudo-words reading, fluency and reading comprehension, listening comprehension, calculation, mathematical reasoning, spelling, additional vocabulary and oral and written expression (Olivera & Cardoso,2012) and may present dysgraphia, due to fine motor function alterations, that is, for having difficulties in bimanual coordination, manual dexterity and fine motor skills (Crawford & Dewey, 2008). The study considered these vital independent variables of teachers' knowledge and assessment methods.

Teachers who have basic knowledge on education usually have very little knowledge about learning difficulties in general. Common reasons for these are: Firstly, teacher training programs devote little or no class hours for understanding the challenges learners with particular disabilities face and how to help them learn. Secondly, general education teachers typically don't undertake any further studies that focus on effective ways to teach learners with learning difficulties. Lastly, educational authorities do not provide ongoing in-service training for

teachers about teaching learners with special needs (Arukesamy, 2017). Due to the abundance and prevalence of students with learning difficulties at schools- mainly primary schools, it seems necessary for primary school teachers to be increasingly familiar with the learning difficulty phenomenon more than other teachers and be able to identify these kinds of students in their classes via the scientific criteria and in the most favorable manner.

Development assessments is a process which allows one to understand a child's competencies and to design learning environments which will help a child grow to his or her environment and will help in her developmental potential from birth till third grade. The purpose of an assessment should guide assessment decisions and should be done or conducted within a coherent system of education that promote optimal development for all children. Because growth is more rapid in the period from birth to age eight then at other periods of development it becomes challenging to capture children's skills and abilities, particularly at any one point in time (Zaslow, Calkins, & Halle, 2000) The varying developmental changes make the needs for assessment of young children very different from those for older children or adults. In many instances, professionals both teach and test young children using downward extensions of methods used with older individuals, often to the detriment of children. Too often, childhood testing results in the "mismeasure" of young children. Assessment methods of children need to support children's developmental changes along a continuum to gather reliable data (Zaslow, Calkins, & Halle, 2000; Neisworth & Bagnato, 2004). Based on the researchers' observed literature the teachers' knowledge and assessment methods of pupils with dyslexia and dysgraphia has not been conducted using moderating variables of gender, school types, teaching experience and educational qualification

Studies of gender differences in construct such as self-esteem and self-concept have produced mixed results. It is generally believed that gender differences across various dimensions of self – concept (academic competence) become more apparent over time, and that there is a decline in the self-esteem and self-confidence of girls. Natalie, Karalyn, Kathryn, Katherine, and Kenneth (2010) established gender differences with externalizing problems throughout childhood and adolescence. Students, particularly girls run away from some subjects. This difficulty reaches at its peak when it is taught by unqualified and non-professional teachers (Grouns, & Cebulla 2016).

According to Ikeke (2017), Nigeria public schools were popular in the 80s because they had discipline, good teachers, good facilities and were attended by children irrespective of their social class and social economic background in the society, however, the story is different today, as a good number of public school in Nigeria today lack good facilities and most teachers are not competent. Study of school type has demonstrated school type as either government, catholic or independent school. Ajayi (2005) in his own study revealed that school type makes a difference in pre-school cognitive development. However, Keeves (2007) acceded that type of school did not make contribution to pre-school education social and cognitive development.

Adedigba (2015) submitted that it is likely that the features of physical environment of ECE differ based on school type. This she said can be as a result of funding which is most times made

available in private proprietorship unlike public schools where most facilities needed at this level of education are not adequately provided. In her survey of the physical and climate of early childhood education learning environment in Kwara state, she found that the quality of physical learning environment of childhood schools in private and public schools in Kwara state was below average but private was found to be better than the public. Another variable of importance to this study is educational qualification.

The qualification of teachers affects their values, behaviors, communication, aims and practices in school and also they support professional development and curricular studies. Previous research explained the qualification of teachers in five different areas which are field qualification, emotional qualification, information and technologies qualification, communication qualification and environmental qualification (Selvi, 2010). Teachers' experience is very important because its plays an important role in educational attainment since teacher is ultimately responsible for translating policy into action. Harris and Sass (2007) believes that many education leaders believe that experienced teachers are more effective at improving student achievement than novice teachers. As a result, the Center for Analysis of Longitudinal Data in Education Research (CALDER, 2007) notes that the high concentration of novice teachers in preschools "is commonly considered a major source of inequity across schools and, therefore, a target for redistribution." At the same time, novice teachers are a source of new energy and skills and therefore may contribute intangible benefits to student adjustment.

Experienced teachers are believed to have combined years of service and a repertoire of classroom skills and strategies. They typically have the ability to prioritize tasks and to attend selectively to a number of key classroom matters (Hagger & McIntyre, 2000)

As a result, differences in the quality of pre-school education based on gender, school type, educational qualification and teaching experience will be determined to further confirm what has been done by previous related research. In this study, the researcher seeks to determine the teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local government area of Kwara state. It has been observed from the literature reviewed that study of this type has never been carried out in Ilorin West Local Government Area of Kwara State. Therefore, this is meant to fill the gap requiring empirical evidence regarding the teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia.

Statement of Problem

The primary education is to inculcate permanent literacy, numeracy and ability to communicate effectively which has to do with developing the child's listening, speaking, reading and writing skills. However, It is reported that 80% of pupils who need special education suffer from dyslexia and dysgraphia, study have it that first grade teachers indicated that 25% of primary class pupils' displayed increased difficulties while learning to read and write. The reasons for these scenarios are many and the roles of teachers and teaching strategies are pertinent in this

situation. Numerous activities/ exercises had been put in place by the educational stakeholders which were to proffer solution to pupils' learning difficulties such as, lessons, extra moral classes and what have you, however, the problem of reading and writing difilcuties persist.

More often than not, teachers fail to put into consideration the individual differences of acquiring ideas by the learners, the teachers always employ a particular approach to teach all the pupils in a particular class and it has adverse effect on the learners. A teacher cannot give what he does not have, because the dyslexia and dysgraphia are sensitive aspect of learning disabilities which required indebt knowledge by the teachers. However, the government and school administrators have made a lot of provisions for seminars and workshop in other to change the story of using a particular approach for the group of pupils without considering learning difficulty of the pupils. But all their efforts proved abortive due to the fact that some teachers have seen teaching as a stepping stone. The researcher seeks to determine the teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local government area of Kwara state. It has been observed from the literature reviewed that study of this type has never been carried out in Ilorin West Local Government Area of Kwara State. Therefore, this is meant to fill the gap requiring empirical evidence regarding the researcher seeks to determine the teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia

Purpose of the Study

The mian purpose of the study is to investigate the Teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State. Specifically, the study examined:

a. Teachers' knowledge methods of pupils' with dyslexia in Ilorin west local government area of kwara state
b. Teachers' knowledge methods of pupils' with dysgraphia in Ilorin west local government area of kwara state
c. Teachers' assessment methods of pupils' with dyslexia in Ilorin west local government area of kwara state
d. Teachers' assessment methods of pupils' with dysgraphia in Ilorin west local government area of kwara state
e. The significant difference in teachers' knowledge of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on gender.
f. The difference in teachers' knowledge of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on school type.
g. The difference in teachers' knowledge of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on teaching experience.

h. The difference in teachers' knowledge of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on educational qualification.

i. The difference in teachers' assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on gender.

j. The difference in teachers' assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on school type.

k. The difference in teachers' assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on teaching experience.

l. The difference in teachers' assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on educational qualification.

Research Questions

The following research questions were generated to give insights into the Study;

1. What is the level teachers' knowledge of pupils' with dyslexia in Ilorin west local government area of kwara state?
2. What is the level teachers' knowledge of pupils' with dysgraphia in Ilorin west local government area of kwara state?
3. What are the teachers' most commonly adopted assessment methods of pupils' with dyslexia in Ilorin west local government area of kwara state?

4. What are the teachers' most commonly adopted assessment methods of pupils' with dysgraphia in Ilorin west local government area of kwara state?

Research Hypotheses

The following hypotheses were postulated for this Study and tested at 0.05 level of significance.

Ho1. There is no significant difference in teachers' knowledge of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on gender.

Ho2. There is no significant difference in teachers' knowledge of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on school type.

Ho3. There is no significant difference in teachers' knowledge of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on teaching experience.

Ho4. There is no significant difference in teachers' knowledge of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on educational qualification.

Ho5. There is no significant difference in teachers' assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on gender.

Ho6. There is no significant difference in teachers' assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on school type.

Ho7. There is no significant difference in teachers' assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on teaching experience.

Ho8. There is no significant difference in teachers' assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State based on educational qualification.

Significance of the Study

The findings of this study would be of significant to the children, teachers, policy makers, and ministry of Education and school owners, it would enlighten teachers on teachers' knowledge and assessment methods of pupils with dyslexia and dysgraphia, which would make children to be catered for based on their learning disabilities. The findings of this study would be beneficial to primary school teachers as it would help them to understand how to support children's learning through understanding of their learning difficulty, by ensuring that the appropriate approaches are employed for the children. This work may reshape and rephrase classroom

teachers to pertinent approaches and also direct and inform them on area to be adopted in achieving this purpose.

Additionally, the policy makers may be in a position to identify the key important areas which need to be reviewed so as to encourage teachers in improving their skills in making use of different approaches that may be of benefit to the learners with dyslexia and dysgraphia.

This work will also help ministries of Education and other concerned agencies to organize workshop, seminars and other educational forum to equip both in-service and pre service primary school teachers on the different approaches to teaching to enhance their efficiency and effectiveness.

The school owners would benefit from this study as it may provide a basis to encourage teachers and also organize training for teachers on the influence of learning difficulty and utilization of appropriate approaches for teaching learners with dyslexia and dysgraphia.

Delimitation of the Study

The research examine the teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of Kwara State. The moderator variables involved are gender, school-type, teaching experience and educational qualifications. The reasons for involving gender, school-type, teaching experience and educational qualifications is to know if the variables have any influences on teachers' knowledge and assessment methods of pupils with dyslexia and dysgraphia. The participants of this sttudy are school teachers.

Operational Definition of Terms

The following terms are defined operationally:

Dyslexia: a learning disability that affect pupils ability to read, spell, write and speak

Dysgraphia: a learning disability that impairs writing ability characterized by poor or illegible handwriting.

Teacher's Experience: is the accumulated teaching skills the teacher at preschool level has gathered over some period of years.

Educational Qualification: is the educational level the teacher at preschool level has attained in his/her course; subject or specific field while undergoing the teacher training programme that qualify him/her to teach at preschool level.

Assessment methods: is a way of assessing pupils' actions and include test and examination, interview/ oral and observations

CHAPTER TWO

REVIEW OF RELATED LITERATURE

This chapter focused on review of the relevant literature related to the researcher work which seeks to determine the teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia. The review is done under the following sub-headings:

Theoretical Review

Lev Vygotsky theory of social constructivism (1978)

Albert Badura social learning theory (1977)

Conceptual Review

Concept of Early Childhood

Concept of dyslexia

Types of dyslexia and Characteristics of dyslexia

Concept of dysgraphia

Symptoms of dysgraphia

Concept of assessment

Concept of teachers' knowledge

Empirical Review

Teacher's knowledge of Dysgraphia and Dyslexia

Teacher's knowledge of Dysgraphia and Dyslexia

Gender and Dysgraphia/ Dyslexia

Teaching experience and dysgraphia/dyslexia

Educational qualification and dysgraphia

Appraisal of Literature Reviewed

Theoretical Review

Cognitive Theory

Albert Bandura is known as the father of cognitive theory. He was born December 4, 1925 in a small town in northern Alberta, Canada, located approximately 50 miles from Edmonton. Bandura's early education consisted of one small school with only two teachers. (Stokes,1986). Albert Bandura soon became fascinated by psychology after enrolling at the University of British Columbia. He had started out at biological sciences major, his interest in psychology formed quite by accident. He was working nights and commuting to school with a group of students who arrived much earlier than his other courses started.(Pajares, 2004).

Learning theories see the environment as the major force in development. (Hoffman, 1993). Scholars categorized learning theories as Behaviorism, Social Learning Theory (SLT) and Social Cognitive Learning Theory (SCLT). In the context of study, Albert Bandura is arguably the most eminent living psychologist. His Social Cognitive theory has influenced many areas of inquiry: education, health sciences, social policy and psychotherapy among others.

Social Learning Theory (SLT)

Social learning theory is increasingly cited as an essential component of sustainable natural resource management and the promotion of desirable behavioural change. (Muro & Jeffrey 2008). This theory is based on the idea that we learn from our interactions with others in a social context. Separately, by observing the behaviors of others, people develop similar behaviors. After observing the behavior of others, people assimilate and imitate that behavior, especially if their observational experiences are positive ones or include rewards related to the observed behavior. According to Bandura, imitation involves the actual reproduction of observed motor activities. (Bandura 1977).

SLT has become perhaps the most influential theory of learning and development. It is rooted in many of the basic concepts of traditional learning theory. This theory has often been called a bridge between behaviorist learning theories and cognitive learning theories because it encompasses attention, memory, and motivation. (Muro & Jeffrey 2008). However, on this

regards, Bandura believes that direct reinforcement could not account for all types of learning. For that reason, in his theory he added a social element, arguing that people can learn new information and behaviors by watching other people. According to the elements of this theory there are three general principles for learning from each other.

The principles of social learning are assumed to operate in the same way throughout life. Observational learning may take place at any age. Insofar as exposure to new influential, powerful models who control resources may occur at life stage, new learning through the modeling process is always possible. (Newman B.M. & P.R, 2007).

SLT posits that people learn from one another, via:

1. Observation;

2. Imitation; and

3. Modeling

Based on these general principles, learning can occur without a change in behavior. In other words, behaviorists say that learning has to be represented by a permanent change in behavior; while in contrast social learning theorists say that because people can learn through observation alone, their learning may not necessarily be shown in their performance. (Bandura, 1965). Learning may or may not result in a behavior change. (Bandura, 2006b).

Bandura demonstrated that cognition plays a role in learning and Over the last 30 years social learning theory has become increasingly cognitive in its interpretation of human learning; these points supported by (Newman 2007).

Constructivist Theory (1978)

Social constructivism is a variety of cognitive constructivism that emphasizes the collaborative nature of much learning. Social constructivism was developed by post-revolutionary Soviet psychologist Lev Vygotsky. Vygotsky was a cognitivist, but rejected the assumption made by cognitivists such as Piaget and Perry that it was possible to separate learning from its social context. He argued that all cognitive functions originate in (and must therefore be explained as products of) social interactions and that learning did not simply comprise the assimilation and accommodation of new knowledge by learners; it was the process by which learners were integrated into a knowledge community.

According to Vygotsky (1978,), this theory does not have stages, like Jean Piaget's theory. Vygotsky's theory states that knowledge is co-constructed and that individuals learn from one another. It is called a social constructivist theory because in Vygotsky's opinion the learner must be engaged in the learning process. Learning happens with the assistance of other people, thus contributing the social aspect of the theory.

A fundamental aspect of Vygotsky's theory is the Zone of Proximal Development. This is a "range of tasks that are too difficult for an individual to master alone, but can be mastered with the assistance or guidance of adults or more-skilled peers (Vygotsky, 1962)." Another part of this theory is scaffolding, which is giving the learner the right amount of assistance at the right time. If the learner can perform a task with some assistance, then he or she is closer to mastering it. This theory is relevant to healthy adolescent development because if students work in pairs, they are interacting with people and therefore can learn different academic ideas from one another. This theory shows that students learn from each other; they can assist one another, the theory can be applied in the classroom in several ways. The students can be grouped such that the students who understand the content work with the students who do not. For example, if a student did not understand factoring, a method to find the zero or zeros of an equation, the teacher could have another student explain the concept to them.

On a similar note, it is very instructive to state that there are various definitions of constructivism but there seem to be four generally accepted principles upon which the variegated views and opinions can be subsumed. For example, explanations from Good and Brophy (1994), Richardson (2003), and Cooperstein and Koceva-Weidinger (2004) provide us with four basic truths that pervade several writings and literatures in constructivism. They include:

Construction of meanings lies with the learners: this implies that since learners are not just logs of wood who just passively listen or receive what the teacher brings to the classroom, they actively create and recreate their own knowledge or make meanings out of the lesson. Thus, they (learners) do by manipulating, asking questions and discovering for themselves what the teacher is unable to let them know (Cooperstein & Koceva-Weidinger, 2004)

Knowledge is gained through prior experiences: This is another basic principle that governs the constructivism theory of learning. This principle holds that while in the process of constructing their own knowledge, learners consciously draw lines of connection between their previous knowledge and life's experiences with the new or current one they receive from the teacher. In doing this, they take cognizance of their belief or value system by comparing and constructing, investigating, questioning or challenging the validity viz-to-viz, the reliability of the information or lesson received from the teacher. The primary focus of these principles is to place learners at a vantage position to accept or reject old information which might have shaped their belief and value system on one end and their progress on the other end (Cooperstein & Koceva-Weidinger, 2004).

The social implication of learning: here, constructivists believed that nobody is an island or has monopoly of knowledge and as much as learning is better enhanced when learners interact with each other by sharing or comparing their ideas and experiences with their

classmates and friends both at home and in school. Thus, individual and small group learning formats are encouraged in constructivist-based classroom settings. The point should be made here, that shy or introvert learners build up courage and confidence when their learning format or structure provides room for learning with others and then sharing what they learnt with the entire class in an engaging discussion and cross-fertilization of ideas (Cooperstein & Koceva-Weidinger, 2004).

Result-oriented learning activities engender meaningful learning: this principle is what places the teacher as a facilitator of knowledge or skills acquisition rather than a transmitter of knowledge or skills. This principle implies that teacher's role in teaching and learning process is to provide learners with practical tasks and activities capable of stimulating learners' participation and engagement. Constructivist believed that the tasks or activities to be provided must have in it, authentic problems or questions that will require learners to work out solutions or answer themselves the teacher is also encouraged to intervene or guide learners in appropriate direction where necessary. (Cooperstein & Koceva-Weidinger, 2004).

Implications for Teaching

The social constructivism theory emphasizes Collaborative learning methods which require learners to develop teamwork skills and to see individual learning as essentially related to the success of group learning. The optimal size for group learning is four or five people. Since the

average section size is ten to fifteen people, collaborative learning methods often require to break students into smaller groups, although discussion sections are essentially collaborative learning environments. For instance, in group investigations students may be split into groups that are then required to choose and research a topic from a limited area. They are then held responsible for researching the topic and presenting their findings to the class. More generally, collaborative learning should be seen as a process of peer interaction that is mediated and structured by the teacher. Discussion can be promoted by the presentation of specific concepts, problems, or scenarios; it is guided by means of effectively directed questions, the introduction and clarification of concepts and information, and references to previously learned material.

Though the role of the teacher in a constructivist based strategy in teaching is minimal, the teacher's major priority is to act as a facilitator and not a teacher in the process of knowledge creation and meaning making by learners in order to make to gain a deeper understanding of knowledge. Thus, he (learner) does by asking, supporting and providing guidelines for learners to reach their own conclusion and providing conducive atmosphere for a continuous dialogue with learners with the learners (Cooperstein & Koceva-Weidinger, 2004).

Based on these discussions, the theory creates opportunities to develop pupils' learning accordingly by actively communicating and sharing ideas with more proficient peers in the leaning activities while teacher is there to guild and thereby expanding conceptual potential.

Thus, within Zone of Proximal Development (ZPD), more capable pupils can provide peers with new ideas and thereby establish a mutually beneficial social process of learning. Peer scaffolding also serves as a meditating tool to promote learners' ZPD. The theory is relevant to the study in numerous ways, at first, the teaching and learning at lower basic classes has to be from simple to complex, know to unknown which will always fosters retentive knowledge among the children, by adopting this kinds of style will also pave the using previous experience to tackle present and future situations, furthermore, the theory lay more emphasis on trial and error which naturally motivates the children learning with different learning resources, mechanical repetition which is all about active participation of children in the classroom activities and making necessary resources available for the teaching and learning for pupils it will go a long way in assisting pupils to learn what they suppose to learn and become a functional member of the society.

Concept of Early Childhood Education

Education is one of the vital factors that help in the development of a human being. The fundamental right of every child is to learn and develop to his or her full potentials through equal access to quality education regardless of their age, gender, origin ethnicity and social background. However, ECE provides the foundation of education in the pre-school education which forms an integral part of a child‘s early education, given formally or informally, in an educational institution to children ages two- five years prior to entering the primary school (Nakopia, 2011).

Early Childhood is the most critical period in human development, thus comprehensive and quality early childhood education can make a significant contribution to the physical, psychomotor, cognitive, social and emotional development of the child; including the acquisition of languages and early literacy. Children are active learners from birth, and the early years are vital to their success in school and later in life. Early childhood education might be considered to be education which takes place before compulsory education. The term refers to education in its broadest sense, including childcare and development. This includes early childhood services provided in kindergartens, nurseries, pre-school classes, child-care centers and other similar institutions. It goes beyond what some refer to as pre-school education, as it is education in its own right, having not only the purpose of preparing children for school, but for life in the same way as all other parts of education systems contribute to this process (Hayes, 2010).

In addition, ECE has an important role in securing all children, good education, thus Childhood years are important in themselves and ECE can contribute to many positive and valuable experiences which form a solid basis for future life and learning. This is supported by the 2007 edition of the Education for All (EFA) Global Monitoring Report (GMR), which provides evidence that children‘s experiences in the first years create a solid foundation for subsequent learning. In addition, the Organization for Economic Cooperation and Development starting strong II (OECD, 2006) asserted that ECE addresses issues of child poverty and educational disadvantage, as well as promoting women‘s labour market participation.

In recent studies, OECD (2006), looked at the long-term impact of ECE, and its findings reveal that 15-year-olds who had attended pre-school were, on average, a year ahead of those who had no reading literacy. Education internationally, thus insists that no child should be denied the benefits of good quality early childhood education. At present various opportunities are provided and several avenues are opened that help in imparting knowledge to children all over the world (Bradford, Aguda, Bingham, Bower, Broomby & Coltman, 2006). Globally, individuals and governments invest heavily to ensure high quality and accessible early childhood education at early stage of life. The importance of the early years, in a child‘s physical, social, emotional, linguistic and cognitive developments cannot be over emphasized. That, future capabilities and successful educational practices are notably linked up with both knowledge and good reasoning ability acquired in the early years of life.

Research studies on capabilities of young children‘s stages, styles of learning, social, emotional, moral developments and successful educational practices have established that children who lack knowledge and experience may not have good reasoning ability (Branford et al, 2006). Hence education provided at early childhood specifically at nursery and primary education level, will enhance children‘s future/later reasoning and educational needs within the formal school system which will promote their educational success and ability.

Early childhood education is an activity that takes place before formal school, in this case, preschool is a part of early childhood, and the aim is the versatile development of child‘s

personality and also helping the child to be ready and mature for a smooth transition to school (Ajala, 2008). In other words, early childhood programme encompasses both qualitative education and care, which should not be separated but provided in a complementary fashion. Quality early childhood education will earn children a position or state of readiness to learn in a formal and non-formal setting. Disposition to learn refers to development of social skills and behaviour in formal educational environment, while readiness to learn is related to the fact that children will start schooling on a solid (footing) foundation to develop their potentials. Emphatically, early childhood education is seen as an evolving field of study, research and practice, which concerns itself with all aspect of early life experience, from separation of anxiety to early literacy development. Early childhood education sometimes called early childhood care and education or early childhood care Development Education refers to the education that children obtain during early stages of life.

Learning is known to be greatly influenced by extraneous factors like the nature of educational environment: instruction material conducive environment provision facilities to which the child is exposed during the first 6 years of life, (Bowan, Donovan & Burn 2001). Early gains in school readiness due to early childhood education have been shown to have enormous positive economic and social impacts, lasting well into adulthood ranging from higher educational attainment and less chance of involvement in criminal activity, to higher status employment and higher earnings. Hence, Early childhood education is crucial in life in terms of a child‘s physical,

intellectual, emotional, moral and social development; growth of mental and physical abilities progresses at an astonished rate and a very high proportion of learning takes place at this stage (Birth to age six). It is a time when children need high quality personal care and learning experience. That is, for any meaningful learning or acquisition of skills and knowledge to take place, the environment should be provided with adequate instructional materials in addition to quality educators; (Schweinhart, Sparling, Ramey & Ramey, 2009).

Children who received quality early childhood education from qualified teachers are more likely to succeed in school and in life. Such children with richer literacy environment demonstrate higher level of reading, knowledge and skills at primary school level: Good early childhood education increases cognitive abilities, school achievement and improves classroom behaviour. Hence, there is the need for careful planning and effective implementation of early childhood education programme which will have positive impact on effective completion of school for the child; (Smith & Barnett, 2004). To buttress this, Mills (2007) specified that early childhood education produces benefits that persist into early adulthood which means that children who participated in early childhood education are likely to perform better in subsequent educational, moral, and social milestone than a similar group who attended another pre-school programme. The "former" group who participated in Early Childhood Education for one or two years will benefit in several ways viz:- Less grade repetition, lower dropout rates, improved parent-child relationship, higher intelligence scores, higher school completion rate, improved social and

emotional behaviour, increased female labour force participation, lower rates of juvenile crimes and have a lower chance to committing violent crimes. These will not only benefit the child but the society as well. For effective and efficient development of a child‘s latent abilities and forms of behaviour of positive values in the society in which the child lives, early childhood education becomes imminent, not only to the educational development but also social interaction and good moral behaviour inclusive, (Osakwe, 2009).

No serious government takes the education of its citizens at the stage of ECE with levity. As such, the National Policy on Education revised, (2013) in line with other nations of the world specified that early childhood education should be given in an educational institution to children aged three to five plus prior to their entering the primary school." The first five years of a child‘s life are very crucial and important in his/her life, as whatever he/she is exposed to during this period has a serious and lasting effect on him/her in future. In France, the central government shares the largest responsibility of the total cost of educating the children while the local authority provides the remainder.

Concept of dyslexia

The term dyslexia has been defined in different ways but no conceptual consensus has been reached. According to Martin, (Carlson & Buskist, 2007), it refers to a disorder involving impaired reading, writing and spelling. The World Federation of Neurologists (1968) defined dyslexia as a disorder in children who despite conventional classroom experience fail to attain

the language skill of reading, writing and spelling commensurate with their intellectual abilities. In relating dyslexia with learning disabilities, the National Institute of Neurological Disorder and Stroke (2010) defined dyslexia as a disorder that impairs a person‘s ability to read and which can visibly manifest as a difficulty with phonological awareness, phonological decoding, orthographic coding, and auditory short term memory. Thus dyslexia is a learning disability that can hinder a pupil‘s ability to read, write, spell and sometimes speak.

Dyslexia or “word blindness” is a developmental reading disorder which is a result from the inability to process graphic symbols. The DSM-IV (cited in Daderman, Lindtren, & Lidberg, 2004), describes dyslexia, as a reading and writing disorder that could be inheritable, and, hence runs in families. Developmental dyslexia which is heritable and acquired dyslexia caused by a lesion in the brain are the two main types of dyslexia (Lyon, 1995). This study focused on developmental dyslexia.

Many definitions of dyslexia exist today but the definition that represents the most current state of the field is the one that was published by Reid, (1995) in *Annals of Dyslexia*. Dr. Lyon is the Chief of the Child Development and Behavior Branch of the National Institute of Child Health and Human Development at the National Institutes of Health. He states that dyslexia is a specific language-based disorder of constitutional origin characterized by difficulties in single word decoding, usually reflecting insufficient phonological processing. These difficulties in single word decoding are often unexpected in relation to age and other cognitive and academic abilities;

they are not the result of generalized developmental disability or sensory impairment. Dyslexia is manifested by variable difficulty with different forms of language, often including, in addition to problems with reading, a conspicuous problem with acquiring proficiency in writing and spelling. (Lyon, 1995) For unexplained reasons, dyslexia is a definite learning disability that inhibits the learning process in spelling, reading and/or writing, which is independent of intelligence and socioeconomic factors. Terms such as 'dyslexia,' 'alexia' and 'word blindness' were created by neurologists to indicate the loss of the ability to read as a consequence of presumably minor, brain damage. In 1887, Rudolf Berlin invented the term 'dyslexia' to symbolize the condition of a somewhat less complete loss of the reading ability compared with alexia (Hjelmquist & Euler, 2002).

Dyslexia is the most common and internationally acknowledged learning disability in the world (Nijakowska, 2010). It is found in all written languages both in alphabetic languages like English and Italian, and logographic languages like Japanese (Nijakowska, 2010). In the broadest sense, dyslexia refers to the difficulty to read and write which normal intelligent children experience, despite being exposed to a suitable education (Bryant & Bradley, 1985). Tunmer and Greaney (2010) add that dyslexia is a life time disorder that is affected by a deficit in phonological skills, which amongst other, causes a difficulty in tying letters and sounds together, resulting in a poor reading and writing ability. The difficulty in reading often causes the dyslexic students to read less than their classmates or in some cases to stagnate at a primitive reading level. Because

reading and writing are such fundamental skills in schooling, dyslexic students often experience a drop in their confidence in their academic aptitude leading to low self-esteem compared to their peers (Ingesson, 2007). Researchers have reported that self-esteem and academic success are interconnected, meaning that low self-esteem tends to lead to academic failure and vice versa (Lawrence, 2006).

Dyslexia seems to affect 10 percent of all readers (Ministry of Education, Science and Culture, 2007; OECD, 2001). Yet, only 3.8 percent of students in the two largest universities in Reykjavík are dyslexic (The University of Iceland (3.5 %) and the Reykjavik University (4.8 %)). These numbers indicate that dyslexic students are underrepresented in tertiary education, possibly because many of them have already dropped out of school. In Iceland, upper secondary schools are obligated by law to assist dyslexic students, by providing necessary aids and support. The low representation of dyslexic students at university indicates that they need more support than what they are being offered at the moment. In 2004, Michael, (2005), conducted a survey on dyslexia and foreign language teachers in Iceland. The survey reports that a majority of foreign languages teachers in Iceland feel they don't have the knowledge to help dyslexic students in their studies. Students in Iceland are also required to learn three to four foreign languages before they can enter into a university, which is more than students in our neighbouring countries. For dyslexic students, this is an immense barrier as studies report that dyslexic students have difficulty in learning foreign languages (Nijakowska, 2010). Furthermore, the English language

has started to play an ever increasing role in Icelandic society, especially in education (Arnbjörnsdóttir, 2007). Dyslexic students have reported to find English especially difficult because of is orthographic complexity (Helmuth, 2001).

The word dyslexia is made of two morphemes whose origin is in Greek. Berninger & Wolf (2009) explain that, "*Dys* is a prefix that means 'impaired'[while] *lexia* is a base word that is derived from the word *lexicon* (the mental dictionary of word meanings, and pronunciations) and means 'word.' Thus, students with dyslexia are impaired in the word-level skills such as decoding, word reading, and spelling. Both accuracy and rate may be impaired, or only rate. " According to the International Dyslexia Association, Dyslexia is a specific learning disability that is neurobiological in origin. It is characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding abilities. These difficulties typically result from a deficit in the phonological component of language that is often unexpected in relation to other cognitive abilities and the provision of effective classroom instruction. Secondary consequences may include problems in reading comprehension and reduced reading experience that can impede growth of vocabulary and background knowledge.

Types of dyslexia

According to the National Institute for Neurological Disorder and Stroke (2010) there are several types of dyslexia that can affect the child's ability to spell as well as read. These include: Trauma dyslexia, Primary dyslexia and secondary or developmental dyslexia.

i. Trauma dyslexia. This type of dyslexia occurs after some form of brain trauma or injury to the area of the brain that controls reading and writing.

ii. Primary dyslexia: This type of dyslexia is a dysfunction of, rather than damage to, the left side of the brain (cerebral cortex) and does not change with age. Individual with this type are rarely able to read above primary four. Primary dyslexia is passed in family lines through their genes. It is found more often in boys than in girls. (Czepita, 2006)

iii. Secondary dyslexia: This type of dyslexia is said to be caused by hormonal development during the early stages of fetal development. Developmental dyslexia diminishes as the child matures. It is also more common in boys than girls. From the foregoing, dyslexia may affect several different functions.

iv. Visual dyslexia is characterized by number and letter reversal and the ability to write symbols in the correct sequence.

v. Auditory dyslexia involves difficulty with sounds of letters. The sounds are perceived as jumbled or not heard correctly.

Characteristic of dyslexia

According to the National Institute for Neurological Disorder and Stroke (2010) there are several characteristics of dyslexia

1. Difficulty with the development of phonological awareness and phonological processing skills.

2. Difficulty in accurately decoding nonsense or unfamiliar words.

3. Difficulty in reading single words in isolation.

4. Inaccurate and labored oral reading.

5. Lack of reading fluency.

6. Various degrees of learning the names of letters and their associated sounds.

7. Difficulty with learning to spell.

8. Difficulty in word finding and rapid naming.

9. Variable difficulty with aspects of written composition.

10. Variable degrees of difficulty with reading comprehension,

Concept of dysgraphia

Dysgraphia interferes with students' ability to learn, complete coursework, communicate, record ideas, demonstrate knowledge, and keep up with peers and teacher instruction. This interference can also create or exacerbate deficits in emotional, academic, and social development and affect factors related to educational motivation, achievement, and persistence such as a self-efficacy, self-esteem, anxiety, and depression in students (Berniger & Wolf, 2009; Martins, et al., 2013). What needs to be very clear is that dysgraphia is a psychomotor disorder involving neurocognitive function and does not affect cognitive functioning, nor is it recognized as a cognitive impairment. There exists a dearth of study into dysgraphia that is explicitly

acknowledged in psychologic and neurocognitive literature, which may account for dysgraphia's categorization as a specific learning disability (APA, 2013; Mayes, et al., 2017; Nicolson & Fawcett, 2011). Dysgraphia also shares high levels of comorbidity with dyslexia, attention deficit hyperactivity disorder (ADHD), and developmental coordination disorder which, coupled with a lack of assessment specific to dysgraphia, make determining the percentage of students with dysgraphia difficult to ascertain (Mayes, et al., 2017). Reynolds (2007) estimated the prevalence 419 of dysgraphia to be 5-20% depending on the grade level, but there is a general lack of clarity and consensus in the literature.

Sketching requires a person to take what exists in the mind's eye and transfer that image to the hand to draw it and view/evaluate the resultant illustration through the eyes and back to the brain. The same process of orthographic coding and sequencing occurs when a person writes (Berniger & May, 2011). Dysgraphia disrupts this loop resulting in malformed lines and representations of letters and images stored in the mind's eye. Although the drawing of shapes is mentioned in the literature and the drawing of geometric shapes is part of a diagnostic assessment for dysgraphia (Mayes, et al., 2017), the focus in the literature primarily focuses on the writing ability of the subjects. Provided the requirement for orthographic and pictorial drawing and sketching in engineering and technology education, this paper seeks to examine the impact of dysgraphia in that setting. Dysgraphia is identified as a specific learning disorder under the rubric of developmental coordination disorder by the American Psychiatric Association

(2013). Generally discussed in contemporary literature within the context of handwriting and spelling, dysgraphia literally translates to difficult (dys-, *English*) writing (-graphia, *Greek*). Viewed largely as a handwriting impairment, dysgraphia also affects a person's ability to draw lines and shapes. The condition represents a neurocognitive disorder associated with executive functioning and finemotor and visual-motor deficits (Mayes, Breaux, Calhoun, & Frye, 2017).

Symptoms of Dysgraphia

The symptoms of dysgraphia are often overlooked by educators, and students with the condition are viewed as unmotivated or uncaring (Berniger & Wolf, 2009). Beyond poor handwriting, students with dysgraphia will display symptoms such as displayed in Figure 1. Students will not exhibit all of the symptoms listed but must display a number of them, although how many or the frequency of observation is unclear.

1. Cramping of fingers while writing short entries
2. Odd wrist, arm, body, or paper orientations such as bending an arm into an L shape
3. Excessive erasures
4. Mixed upper case and lower-case letters
5. Inconsistent form and size of letters or unfinished letters
6. Misuse of lines and margins and inefficient speed of copying
7. Inattentiveness over details when writing

8. Frequent need of verbal cues
9. Relies heavily on vision to write
10. Difficulty visualizing letter formation beforehand
11. Poor legibility
12. Poor spatial planning on paper
13. Difficulty writing and thinking at the same time (creative writing, taking notes)
14. Handwriting abilities that may interfere with spelling and written composition
15. Difficulty understanding homophones and what spelling to use
16. Having a hard time translating ideas to writing, sometimes using the wrong words altogether
17. May feel pain while writing (cramps in fingers, wrist and palms

Concept of assessments

Schools are established for the purpose of teaching and learning. This process of evaluating learners is what is commonly known as assessment. Assessment is a process which includes identifying objectives to assess, formulating a design to carry out the assessment, carrying out measurement, reporting and documenting the results of the measurement usually in measureable terms. However, Paloma and Banta (2009), defined assessment as the systematic collection, review and use of information about educational programs undertaken for the purpose of improving learning and development. Bardes and Denton (2006), defined assessment as the

process which provides data/information on students learning, analyses and uses this data to confirm and improve learning (formative assessment), produce evidence that students are learning the outcomes intended (summative assessment).

Assessment in early childhood and primary education should focus on the total development of the child. It should entail a variety of strategies to determine the development of individual children. (Afee, Leong & Bodrova, 2004) defined assessment as the process of gathering information about children from several forms of evidence, then organizing and interpreting the information. This is because results from such assessment not only provide feedbacks regarding the educational progress of students but remain the authentic yardstick for gauging the effectiveness of the teacher, the quality of instruction, and in part the functionality of any curriculum reform.

Assessment is formative when the purpose of the assessment is to improve learning. It is summative when the purpose of the assessment is for placement, certification and other judgmental purposes. Assessment involves various processes. The six processes involved in assessment include: identifying objectives to assess, developing test instrument, collecting data, analyzing data, reporting results and use of results. It is the process by which a teacher collects data about the outcomes of his/her teaching and uses the outcomes for further Improvement. It is a procedure usually undertaken by a teacher to find out whether students have learnt what they

are expected to learn and the extent to which behavioral objectives have been attained. Hence, assessment has become the mode of evaluating students learning outcome in schools. By comparison, Dynamic Assessment (DA) is a procedure that has interaction at the Centre of the assessment. It means supporting learner development actively by understanding learner abilities.

Classroom assessments that serve as meaningful sources of information don't surprise students. Instead, these assessments reflect the concepts and skills that the teacher emphasized in class, along with the teacher's clear criteria for judging students' performance. These concepts, skills, and criteria align with the teacher's instructional activities and, ideally, with state or district standards. Students see these assessments as fair measures of important learning goals. Teachers facilitate learning by providing students with important feedback on their learning progress and by helping them identify learning problems (Bloom, Madaus, & Hastings, Stiggins, 2002).

Concept of teachers' knowledge

(Ferrer, Bengoa, & Joshi, 2016) investigated in-service and pre-service teachers' knowledge and beliefs of developmental dyslexia. They developed the Knowledge and Beliefs about Developmental Dyslexia Scale with 36 items. Every item in the scale is a statement about dyslexia and teachers are asked to evaluate the statements as true, false, or no idea. The scale measures teachers' knowledge and misconceptions about developmental dyslexia in three areas: General information about the nature, causes and outcome of developmental dyslexia, symptoms

of developmental dyslexia and the treatment of developmental dyslexia. Their study indicated that teachers' knowledge was not correlated with their age and gender. A statistically significant correlation was found between pre-service teachers' scale scores and training about dyslexia in their university studies. In-service teachers' scale scores were significantly correlated with their years of teaching experience, postgraduate training about dyslexia, and prior exposure to a child with dyslexia. In-service teachers' knowledge of dyslexia was positively correlated to their self-confidence in teaching children with dyslexia.

Empirical Review of Literature on Teachers' knowledge of dyslexia and dysgraphia

(Rudiyatu, Mumpuniarti & Pujaningsih (2017) researched on teacher's knowledge and experience dealing with children with learning disabilities in elementary school. The objective of the study was to provide initial information in the form of how primary school teachers are dealing with children with learning disabilities in order to investigate the gap between the real intervention with the suitable education services. The study employed descriptive qualitative research. The sample size of the study comprises of thirty (30) primary school teachers. The research instrument used was focus group discussion and questionnaire for elementary school teachers. The result of the study showed that teachers have not been perceived correctly that among children with learning difficulties there are children with specific learning difficulties or children with learning disabilities, so accommodation is more likely to be done by adjusting the

curriculum and modifications to the conversion method can be done by teachers on the basis of perceptions they have.

Julie, (2016). Conducted study on primary school teachers' level of knowledge on learning disabilities (LD). This information is important, as early detection of a learning disability has been proven to be imperative to a student's academic success in school. Since primary school teachers are the first educators with whom students come in contact, they may be the first to detect possible signs of a learning disability and initiate some form of intervention. As a result, this research examines primary teachers' level of knowledge about learning disabilities, where teachers obtained this knowledge, and teachers' beliefs about learning disabilities. An Internet survey was employed in this study through Fluid Survey. The questionnaire was advertised to primary school teachers to participate through teacher pages on Facebook. The survey received 143 responses from Ontario primary school teachers. The data analysis for this research was examined in three sections; demographics of participants, primary teachers' knowledge of learning disabilities, and cross analysis between the two other sections (demographics and teachers' knowledge about learning disabilities). Frequency, ANOVA, and chi-square tests were conducted on the data for analysis. It was concluded that teachers have robust knowledge on characteristics of learning disabilities and effective classroom strategies for students with learning disabilities. However, it was also determined that teachers' area of weakness was in their knowledge of risk factors that can cause a student to have a learning disability.

Interestingly, early grade primary teachers (grade 1 and grade 2 teachers) received the least support from fellow teachers and educational assistance. Based on these findings it is recommended that further examination of how primary teachers use their knowledge in a classroom with students with LD is required.

In conclusion, previous studies show a diversified patterns of findings regarding knowledge linked to LD and detection of students with LD. Some research, such as Shari and Vranda's (2015), indicates that teachers' qualification and years of working experience contribute to teachers' knowledge regarding LD. On the other hand, for research like Khalil and Jenahi's (2019) these two variables are found not to be linked to teachers' knowledge of LD.

However, research made by Alahmadi and El Keshky (2019) on primary school teachers' knowledge of specific Learning Disabilities's in Kingdom of Saudia Arabia indicated a different finding from both previously mentioned research. The findings show education level of teacher is a significant contributor to their knowledge on specific LDs. Meanwhile, the duration of teaching experience was found to be an insignificant variable, on teachers' knowledge of specific LDs.

Teachers' assessment methods of dyslexia and dysgraphia

This mixed-methods study incorporated elements of survey, case study and action research approaches in investigating an at-risk child. Using an in-take interview, a diagnostic test, an error analysis, and a think-aloud clinical interview, the study identified the child's major presenting

difficulties. These included: inability to use the four arithmetic operations (addition, subtraction, multiplication, division) efficiently; not understanding the relationship between units, tens and hundreds; using any two of the four arithmetic processes (+, - , x, ÷) in combination within one operation; treating each column as a separate problem; place value problems / wrong alignment of numbers; poor eye-hand coordination leading to dysgraphia; and memory lapses. The other problems that became apparent through this investigation and implied in the findings include possible causal factors such as dyscalculia, dyslexia, low self-esteem, low self-efficacy, and math anxiety. Further assessment, intervention and research are recommended to address problems of this vulnerable child. (Lawrence, 2012),

This essay focuses on what impact developmental dyslexia has on assessment and grading in the second language teaching of English in the Swedish educational system. The data presented in this essay are based on six semi-structured interviews with English language teachers of lower and upper secondary schools from the south-eastern parts of Sweden. The interviews were conducted in Swedish, and the collected data have been translated into English. The inquiries of the interviews focused on the teachers' awareness of dyslexia and its impact on learning and teaching, as well as how they worked with and their considerations made when assessing and grading dyslexic pupils.

The interviews specifically enquired what particular challenges arose in the assessment and grading process, what provided aid, and what could be done to provide further relief during this

process. The results show that the assessment and grading of dyslexic pupils is similar to the general practice. The teachers do, however, accommodate the dyslexic pupils' needs in the teaching and carefully consider their difficulties when assessing and grading. The teachers use, for example, spelling programs and such technical aids to help them, to some extent, disregard dyslexic difficulties while assessing. However, results show how the teachers are not able to transfer their awareness of dyslexia and its implications into the assessment and grading situation, suggesting that the teachers' own ability to assess dyslexic pupils is somewhat inadequate. (Sanna,2013)

Gender and dysgraphia/dyslexia

The study carried out on the Influence of Gender Disparity on Students' Academic Performance in Government Technical Training School in Jalingo Taraba State. A sample of 190 students and 10 Teachers was selected through simple random sampling technique. Two research questions were posed to guide the study. Structured questionnaire was used to collect data. Data were analyzed using mean and standard deviation for research questions. The study revealed amongst others that Lack of role model to emulate, greasy and oil nature of technical, fear for engineering courses as it relates to calculations, lack of sex or share future career especially female students, and construction and Inferiority complex among female student influences gender disparity on academic performance and participation of students in government technical training school, Jalingo, Taraba State. Based on the findings of the study, it was recommended amongst others

that; Efforts should be made to carry out sensitization campaign in print and electronic media to parents and members of the public on issues of gender disparity in Technical-Vocational skilled programmes and its attendant effects on the society in general and the nation in particular (Kaigama & Madaki 2020).

This research studied the relationship between student's gender and academic performance in computer science in New Bussa, Borgu local government of Niger state. Questionnaire which consist of 30 multiple-choice items drawn from Senior School Certificate Examination past questions as set by the West Africa Examination Council in 2014 multiple choice past question was used as the research instrument consist. The questionnaire was administered to 275 students from both private and public schools in the study area. The students' responses were marked and scored, afterward analyzed using independent t-test. The results of the study showed that even though the male students had slightly better performance compared to the female students, it was not significant. This better performance was found to be pronounced in the private school which was shown to possess the best male brains found in the study area. Based on the findings of this study, recommendations were made. Parents are encouraged to provide the right education they can afford for their children irrespective of gender. Also, there should be a deliberate Federal Government policy to encourage absorbance of female students into further study in computer science. Furthermore, it was recommended that stake holders in the education industry should

make use of these findings and try to research into ways of making gender sensitive policies, (Adigun, Onihunwa, Irunokhai, Sada & Adesina, 2016)

The present study sought to investigate the prevalence of learning disorders among undergraduate students in Faculty of Education in Cross River University of Technology, Calabar. Learning disorders otherwise learning disabilities are an umbrella term for a wide variety of learning problems. Learning problems may not be correctly understood as low intellectual level but are likely disorders or difficulties associated with certain aspects of learning. The study therefore investigated the prevalence of these disorders or difficulties among students, the most common types of these disorders associated with undergraduate students and the sex difference in manifestation of the disorders. The common types of disorders considered in this present study were dyslexia, dysgraphia, dyscalculia and attention deficit hyperactive disorder (ADHA). The study population comprised all the undergraduate students in Faculty of Education and a sample of 240 respondents. Data collection instrument was a structured questionnaire titled ‘Learning disorder questionnaire (LDQ).

The major findings were that the highest manifested learning difficulty among undergraduate students is dyscalculia followed by dysgraphia. There was a positive correlation between dyslexia (poor reading and pronunciation ability) and dysgraphia (problem in spelling, organization and coherence in writing). It was also found that only the level of manifestation of dyslexia is not significantly higher than the expected value. Significant gender difference exists

only for dysgraphia. All other gender differences were not significant. Differences between academic departments were significant except for ADHD. It was recommended that students should be made to copy notes in class and be more engaged in written assignments. Build on their strengths and use assistive technology, take medication to improve concentration and depression Nkomo, (2020)

School type and dysgraphia

The researcher sought to determine whether an overall low average or a specific learning disability is a better predictor of a student displaying aggression at school. Further, she investigated for any interaction between an overall low average and a specific learning disability. The subjects were students in grades six through eight who attended a traditional middle school in a somewhat rural school district. The subjects had been punished by an out-of-school suspension at least once for an act of aggression during the 2006-2007 school year. Using a multiple regression analysis, the researcher found a negative correlation between overall average and suspensions for the number of aggressive acts displayed at school. As overall average decreased, the number of suspensions for acts of aggression increased. The presence of a specific learning disability label did not significantly correlate with aggression. Neither did the presence of both a low overall average and a specific learning disability label prove to be significant. When both factors were present for a subject, the low overall average was shown to be the more important correlate with aggression. The researcher concluded that an overall low average was a

better predictor for the likelihood of a student displaying aggression at school than was a specific learning disability label (Cherry, 2009).

Ayafou (2012) carried out to determine the effect of reflective teaching on the academic achievement of students with learning disabilities in Basic science in Ayamasa, Ekeremor Local Government Area of Bayelsa State. Four research questions and 4 hypotheses tested at 0.05 level of significant were generated to guide the study. The design of the study was quasi experiment non equivalent control design involving two treatment groups and two control groups and two control groups was used for the study. The sample consisted of 62 students identified with learning disabilities. The instrument for data collection was Basic Science Achievement Test. Mean, standard deviation, T-test and analysis of covariance were used to analyze the data. Major findings indicate that, reflective teaching enhances the academic achievement of students with learning disabilities in Basic Science. Gender has no significant effect on the achievement of students with learning disabilities. School location has significant influence on the academic achievement of students with learning disabilities. Lastly, the interaction effect of Gender and school location on students exposed to reflective teaching was not significant. The study concludes that reflective teaching should be used on students with learning disabilities.

Teaching Experience and Dysgraphia/Dyslexia

Dyslexia and dysgraphia are the most famous learning difficulties that concern scientists and educators. Being ignorant about such difficulties makes teachers waste a lot of time and efforts in dealing with a phenomenon that is not known in many educational circles. The things that make these phenomena risky problems are their symptoms, vagueness, and the little knowledge available about them. The following study investigates the instructor's background knowledge about these disorders. A questionnaire was distributed to (20) teachers chosen randomly from different Iraqi colleges. To back up, an interview with specialized teachers were made. The analysis showed that the most occurring symptoms from the teachers' perspectives are shown in hesitant reading and writing of the students, their stuttering, and their struggle in reading long sentences. The researchers believe that teachers have a little knowledge of these disorders. Therefore, more knowledge is required for them to deal with such phenomenon in the best possible way, **(**Muna, & Angham, 2014)

Study on the nature and extent of reading impairment (dyslexia) and writing impairment (dysgraphia) in the English of a group of twenty-five upper-primary pupils of the Sabatia Sub-county of Vihiga County who experienced serious reading and writing difficulties. Specifically, it addressed the following questions: one, whether there was correlation between the reading and writing difficulties among the subjects; two, whether the subjects would read and write words better when they were presented in a linguistic context; three, whether functional words would pose a greater challenge than content words in both reading and writing; and, four, whether the

subjects would read and write monosyllabic words better than polysyllabic ones. Seven hypotheses related to these questions were tested. To collect data for dyslexia analysis, the subjects were asked to read aloud selected words and sentences in a list, as they were recorded using a voice recorder. For data related to dysgraphia, words and sentences were dictated to the subjects. To test whether there was correlation between the subjects' reading and writing, Pearson's product-moment coefficient of correlation(r) was calculated, while the chi-square($X2$) test was used to test the remaining six hypotheses. The results show that, as the study had hypothesized, there was a high positive correlation between the subjects' reading and writing ($r = 0.79$ at $p<0.01$, with $df=23$).

But the only other hypothesis that was confirmed was that which said that monosyllabic words would be written better than polysyllabic ones ($X2 =45.24$ at $p<0.05$, with $df=1$). Results for two other hypotheses (namely the second, which said that words presented in context would be read better than words presented in isolation, and the sixth, which said that monosyllabic words would be read more easily than polysyllabic ones) pointed in the direction hypothesized by this study, but they were not confirmed because the relevant calculated statistics were not statistically significant. However, contrary to what had been hypothesized, the study found the subjects' performance on both reading and writing functional words was much better than that on reading and writing content words, and also found that words presented in isolation were written better

than those presented in context. These results call for further research on the same topic to explore the possibility of there being other explanatory factors at play (Mnyor & Veilon, 2016)

Educational qualification and dysgraphia

In an era where basic education and equal opportunity are perceived human rights, governments and different stakeholders are continually making adjustments to how education is provided for children with dyslexia. Although this global social justice agenda has translated into the Ghanaian educational system, most of the efforts have been towards accommodating traditional disabilities. Consequently, the instructional accommodations needed by children with dyslexia to help remediate the difficulties experienced may not be effectively provided. This research attempts to explore the beliefs that may influence the instructional strategies used on children with dyslexia. Specifically, it investigates teachers' beliefs about dyslexia and explores the extent to which teacher education-specific variables may influence such beliefs.

The scope of the research was confined to the Effutu District, Winneba, where professional development initiatives have been comparatively rife. It focused on pilot inclusive schools in the district. Participating teachers consisted of 40 teachers from 6 out of the 8 pilot inclusive schools in the region. Teacher beliefs and knowledge towards dyslexia was measured using both semi-structured interviews and a 15-item dyslexia scale adapted from the validated Dyslexia Belief Index.

Descriptive analysis revealed that the mean questionnaire score was lower than 48 points, which was the score hypothesized to be indicative of accurate beliefs considerable knowledge about dyslexia. In spite of this, further analysis revealed that teachers in the Effutu district had both misconceptions and accurate beliefs about dyslexia. Another key finding of the study was that special education needs training in dyslexia and in general did not significantly lead to fewer misconceptions; and teachers with Masters in education had a significantly higher mean score than teachers with Diploma in education. The implications of these findings for teaching training initiatives are discussed. (Diana,2014).

The study examined the effect of teacher's qualification on the performance of Senior Secondary School students in Physics. The purpose was to determine whether the status of the teacher has any impact on the performance of the students in Physics. The survey type of descriptive research design was adopted. The sample for the study consisted of 100 Senior Secondary Schools Physics students in Ekiti State and the teachers that prepared and presented the students in each school for 2009/2010 West African School Certificate Examination. The year's result summary for each school was collated with the bio-data of their respective Physics teachers. Four hypotheses were postulated and tested at 0.05 significance level. The data collated were analysed using inferential statistics. The results revealed that students taught by teachers with higher qualifications performed better than those taught by teachers with lower qualifications. It was also showed that students performed better in physics when taught by professional teachers.

The result also showed that teacher's gender has no effect on their ability to impact knowledge on the students, much as he/she is a skilled teacher in that field of study. However, the experience of the teacher is significant at impacting the students' academic performance in Physics. Based on the findings, it was recommended that experienced teachers with professional qualifications in higher level should teach Physics at the certificate class. (Owolabi & Adedayo, 2012)

Appraisal of Literature Reviewed

The literature review started with a holistic look at various views and opinion on social constructivism theory of lev vygotsky which serves the theoretical review that guided the rest of the literature review in particular and the study in general. However, Stein (2011) explains that, "People inherit genes (we think there are at least nine genes) that give you a vulnerability to problems with reading. Those genes cause a problem with the development of a particular kind of nerve cell in the brain that is important for reading. These nerve cells are called magnocells. They are important for timing visual events and timing auditory events (for instance the sounds in speech). More so, this was followed by a critical review of the conceptual review such as Concept of early childhood Education, concept of dyslexia, types of dyslexia, characteristics of dyslexia, Concept of dysgraphia, symptoms of dysgraphia Concept of teachers knowledge and concept of assessment. As children learn through purposeful, critical thinking and sharing experience, they build critical basic skills for academic performance. The reviewed did not

establish how the variable of teachers' knowledge and assessment affects Dyslexia and Dysgraphia of pupils In Ilorin West Local Government Area of Kwara State. This seeming neglect was what necessitated this study.

On the independent variables of Dyslexia and Dysgraphia, the literature searched was able to situate the review according to authors' view on their conceptual meanings, types, symptoms and characteristic. However, to give review a broader focus, empirical studies were reviewed so as to determine the extent to which previous findings could be evaluated in relation to the problem of the study stated in chapter one. Several empirical studies were conducted in out Nigeria educational settings and in other areas such as Dyslexia and Dysgraphia and teachers' knowledge and assessment methods. The researcher discovered that during extensive literature review in Dyslexia and Dysgraphia, most of the researchers found link between Dyslexia and Dysgraphia.

CHAPTER THREE

RESEARCH METHODOLOGY

This chapter discussed on the method and procedures that were used by the researcher to conduct this study. The chapter is presented under the following subheadings; Research Design, Population, Sample and Sampling Techniques, Research Instrument, Validity and Reliability of the instrument, Procedure for Data collection and Method of Data Analysis.

Research Design

Descriptive survey research design was adopted in the study to investigate teachers' knowledge and assessment methods of pupils' with dyslexia and dysgraphia. This design is a process of carrying out a study by collecting and analyzing data gathered from a sample considered to be representative of the population. Descriptive survey method allows the researcher to pose a series of questions to willing participants, summarize their responses with percentages, frequency counts, or more rigorous statistics, and draw inferences about a particular population from the responses of the sample (Adewumi, 2002)

Population of the Study

The population of this study comprised all the primary school teachers in Ilorin West Local Government Area of Kwara State. There are 287 primary schools both in public and private with 222 in private and 65 in public in Ilorin West Local Government Area.

Sample and Sampling Techniques

The total number of 29 schools out of 287 were used as sample using proportional sampling. The school types are already in strata of private and public schools, Proportional sampling techniques were used to select 10% of the population in Ilorin West Local Government Area has the total number of 287 primary schools both in public and private with 222 in private and 65 in public. 22 out of the 222 private schools were used as sample while 7 out of the 65 public schools were selected. A sample size of 29 schools were randomly selected with ten teachers from each school. Proportional sampling technique was adopted as it was given the school type equal chances of been selected. Bullen (2014), support the fact that a good manimum sample size is usually 10 % as long as it does not exceed 1000.

Research Instruments

This study used two research instruments which are: Teachers' Knowledge of Dyslexia and Dysgraphia Test (TKDDT) and Taechers Assessment Method of Dysgraphia and Dtslexia Rating Scale (TAMDDRS) These instruments were constructed by the researcher to collect information on the teachers' knowledge of pupils with dyslexia and dysgraphia. These instruments comprised of sections A and B. Section A consisted of the demographic data of the respondents such as gender, school type, teaching experience and educational qualification while section B

comprised of information on the teachers' knowledge of pupils with dyslexia and dysgraphia. TKDDT consists of 10 items. The items were assessed in objective test.

Teachers' Assessment Methods of Dyslexia and Dysgraphia rating scale (TAMDDRS). This instrument was constructed by the researcher to collect information on the Teachers' Assessment Methods of' Dyslexia and Dysgraphia. This instrument comprised of sections A and B. Section A consists of the demographic data of the respondents such as gender, school type, teaching experience and educational qualification while section B comprised of information on Teachers' Assessment Methods of Dyslexia and Dysgraphia Rating Scale (TAMDDR) consists of 10 items. The items are structured in four likert scale of Always, Sometimes and Never.

Validity of the instruments

Face and content validity were employed on the instruments by the researcher. Copies of the instruments Test for Teachers' Knowledge of Dyslexia and Dysgraphia test (TKDDT), Teachers' Assessment Methods of Dyslexia and Dysgraphia Rating Scale (TAMDDRS) were given to five experts in Early Childhood education in the Faculty of Education, Kwara State University to ascertain in the face and content validity, it was thereafter given to the researcher's supervisor for the final approval after the suggestions were incorporated.

Reliability of the instrument

A pilot study was conducted to ascertain the reliability of the instruments, test re-test method of reliability was used for the first instrument. The researcher administered twenty five copies of the instrument test for Teachers' Knowledge of Dyslexia and Dysgraphia test (TKDDT) to teachers selected from a school that are not respondents in this study at the interval of two weeks. Pearsons Product Moment Correlation (PPMC) were used to determine the reliability coefficient of the instruments and reliabilities were 0.82 and 0.74

Procedure for Data Collection

The researcher obtained a letter of introduction from the department of early childhood and primary education, Kwara State University which was tendered to the head teachers of the schools selected for the permission to administer questionnaire and as well as the test questions, the researcher trained three research assistant on how to administer and retrieve the instrument in three days. The researcher and two trained research assistants administered the instruments to the respondents of the sampled schools in Ilorin West Local Government, Kwara State in order to retrieve first hand information for the study, the exercise lasted for a period of three weeks. The first two weeks were used for administering and retrieval of Test for Teachers' Knowledge of Dyslexia and Dysgraphia test (TKDDT), Teachers' Assessment Methods of Dyslexia and Dysgraphia Rating Scale (TAMDDRS) while the last week was used for the conduct and marking of test by the researcher and the research assistants.

Method of Data Analysis

The data collected for the research questions were analyzed using descriptive statistics of mean, standard deviation, percentage, frequency count. Analysis of variance ANOVA and independent sample t-test was used to test the null hypotheses at 0.05 level of significance.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

This chapter is concerned with data analysis and the result of the study. The demographic profile of the respondents was presented and analyzed using frequency count and percentage, research questions were analyzed using frequency counts, percentage and mean while the formulated research hypotheses were tested using independent samples t-test and Analysis of Variance (ANOVA). The hypotheses were all tested at 0.05 level of significance.

Table 1: Distribution of respondents based on gender

Gender	Frequency	Percentage
Male	119	41.0
Female	171	59.0
Total	290	100.0

Table 1 shows the distribution of respondents based on gender. 119 of the respondents representing 41.0% were male while 171 of the respondents representing 59.0% were female. Apparently, female respondents were more in number than male respondents.

Research Question One: What is the level of teachers' knowledge of pupils with dyslexia?

Table 2: Table showing level of teachers' knowledge of pupils with dyslexia

Dispersion	Score	N	Mean Score	Remark
Minimum	5			Low level of Knowledge of pupils with Dyslexia
Maximum	30	290	10.59	

Key: 0.00 – 24.99 = Low High: 25.00 – 50.00

Table 2 shows the level of teachers' knowledge of pupils with dyslexia. Apparently the minimum score was 5 while the maximum score was 30. Then the mean score was 10.59 which indicated that the level of teachers' knowledge of pupils with dyslexia was low.

Research Question Two: What is the level of teachers' knowledge of pupils with dysgraphia?

Table 3: Table showing level of teachers' knowledge of pupils with dysgraphia

Dispersion	Score	N	Mean Score	Remark
Minimum	5			Low level of Knowledge of pupils with Dysgraphia
Maximum	35	290	8.78	

Key: 0.00 – 24.99 = Low High: 25.00 – 50.00

Table 3 shows the level of teachers' knowledge of pupils with dysgraphia. Apparently the minimum score was 5 while the maximum score was 35. Then the mean score was 8.78 which indicated that the level of teachers' knowledge of pupils with dysgraphia was low.

Research Question Three: What are the teachers' most commonly adopted method of assessing pupils with dyslexia?

Table 4: Table showing the most commonly adopted method of assessing pupils with dyslexia

S/N	Assessment Methods	Always	Sometimes	Never	Mean
1	No Assessment	90(31.0)	99(34.1)	101(34.8)	1.96
2	Close format Assessment	153(52.8)	127(43.8)	127(43.8)	2.49
3	Paper and Pencil	189(65.2)	83(28.6)	18(6.2)	2.59
4	Oral	232(80.0)	45(15.5)	13(4.5)	2.76
5	Standard reading comprehension measure	38(13.1)	175(60.3)	77(26.6)	1.87
6	Observation	209(72.1)	40(13.8)	41(14.1)	2.58
7	Retelling	148(50.3)	97(33.4)	47(16.2)	2.34
8	Portfolio	51(17.6)	152(52.4)	87(30.0)	1.88
9	One on one	206(71.0)	52(17.9)	32(11.0)	2.60
10	Reading Test	55(19.0)	74(25.5)	161(55.5)	1.63

Table 4 shows the most commonly adopted method of assessing pupils with dyslexia in Ilorin West Local Government Area of Kwara State. The most commonly adopted method of assessing pupils with dyslexia is the method with the highest mean. From the mean comparison, it is apparent that Oral (Mean = 2.76) has the highest mean. Hence, Oral was the most commonly adopted method of assessing pupils with dyslexia in Ilorin West Local Government Area of Kwara State.

Research Question Four: What are the most commonly adopted method of assessing pupils with dysgraphia?

Table 5: Table showing the most commonly adopted method of assessing pupils with dysgraphia

S/N	Assessment Methods	Always	Sometimes	Never	Mean
1	Paper and Pencil	234(80.7)	51(17.6)	5(1.7)	2.79
2	Observation	225(77.6)	60(20.7)	5(1.7)	2.76
3	Oral	207(71.4)	74(25.5)	9(3.1)	2.68
4	No Assessment	54(18.6)	178(61.4)	58(20.0)	1.99
5	One on one	184(63.4)	71(24.5)	35(12.1)	2.51
6	Close format Assessment	126(43.4)	90(31.0)	74(25.5)	2.18
7	Retelling	157(54.1)	52(17.9)	81(27.9)	2.26
8	Reading Test	120(41.4)	66(22.8)	104(35.9)	2.06
9	Standard reading comprehension measure	54(18.6)	123(42.4)	113(39.0)	1.80
10	Portfolio	28(9.7)	156(53.8)	106(36.6)	1.73

Table 5 shows the most commonly adopted method of assessing pupils with dysgraphia in Ilorin West Local Government Area of Kwara State. The most commonly adopted method of assessing pupils with dysgraphia is the method with the highest mean. From the mean comparison, it is apparent that Paper and Pencil (Mean = 2.79) has the highest mean. Hence, Paper and Pencil was the most commonly adopted method of assessing pupils with dyslexia in Ilorin West Local Government Area of Kwara State.

Hypotheses testing

Research Hypothesis One: There is no significant difference in the level of teachers' knowledge of pupils with dyslexia based on gender

Table 6: Table showing difference in the level of teachers' knowledge of pupils with dyslexia based on gender

Gender	**N**	**Mean**	**Std. Deviation**	**T**	**Df**	**Sig**	**Remark**
Male	119	10.38	5.53				
Female	171	10.73	5.93	-.512	288	.609	Not significant

Table 6 shows the difference in the level of Teachers' Knowledge of pupils with dyslexia based on gender. There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on gender ($t(288) = -0.512$; $P > 0.05$). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Two: There is no significant difference in the level of teachers' knowledge of pupils with dyslexia based on school type

Table 7: Table showing difference in the level of teachers' knowledge of pupils with dyslexia based on school type

School type	n	Mean	Std. Deviation	t	Df	Sig	Remark
Private	220	10.57	5.78				
Public	70	10.64	5.77	-.094	288	.925	Not significant

Table 7 shows the difference in the level of teachers' knowledge of pupils with dyslexia based on school type. There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on school type ($t = -.094$; $df = .288$; $P > 0.05$). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Three: There is no significant difference in the level of teachers' knowledge of pupils with dyslexia based on teaching experience

Table 8: Table showing difference in the level of teachers' knowledge of pupils with dyslexia based on teaching experience

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2.973	3	.991	.030	.993
Within Groups	9597.372	286	33.557		

Total	9600.345	289

Table 8 shows the difference in the level of teachers' knowledge of pupils with dyslexia based on teaching experience. There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on teaching experience ($F_{(3; 286)} = .030$; $P > 0.05$). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Four: There is no significant difference in the level of teachers' knowledge of pupils with dyslexia based on educational qualification

Table 9: Table showing difference in the level of teachers' knowledge of pupils with dyslexia based on educational qualification

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	8.025	2	4.013	.120	.887
Within Groups	9592.320	287	33.423		
Total	9600.345	289			

Table 9 shows the difference in the level of teachers' knowledge of pupils with dyslexia based on educational qualification. There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on educational qualification ($F_{(2; 287)} = .120$; $P > 0.05$). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Five: There is no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on gender

Table 10: Table showing difference in the level of teachers' knowledge of pupils with dysgraphia based on gender

Gender	N	Mean	Std. Deviation	t	Df	Sig	Remark
Male	119	8.32	5.34	-1.079	288	.281	Not significant
Female	171	9.09	6.43				

Table 10 shows the difference in the level of teachers' knowledge of pupils with dysgraphia based on gender. There was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on gender ($t = -1.079$; $df = .288$; $P > 0.05$). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Six: There is no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on school type

Table 11: Table showing difference in the level of teachers' knowledge of pupils with dysgraphia based on school type

School type	N	Mean	Std. Deviation	T	Df	Sig	Remark
Private	220	8.52	5.71	-1.273	288	.204	Not significant
Public	70	9.57	6.85				

Table 11 shows the difference in the level of teachers' knowledge of pupils with dysgraphia based on school type. There was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on school type (t = -1.273; df = .288; P > 0.05). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Seven: There is no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on teaching experience

Table 12: Table showing difference in the level of teachers' knowledge of pupils with dysgraphia based on teaching experience

	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	257.293	3	85.764	2.409	.067
Within Groups	10183.138	286	35.605		
Total	10440.431	289			

Table 12 shows the difference in the level of teachers' knowledge of pupils with dysgraphia based on teaching experience. There was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on teaching experience ($F_{(3; 286)} = 2.409$; P > 0.05). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Research Hypothesis Eight: There is no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on educational qualification

Table 13: Table showing difference in the level of teachers' knowledge of pupils with dysgraphia based on educational qualification

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	138.643	2	69.322	1.931	.147
Within Groups	10301.788	287	35.895		
Total	10440.431	289			

Table 9 shows the difference in the level of Teachers' Knowledge of pupils with dysgraphia based on educational qualification. There was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on educational qualification ($F_{(2;\ 287)} = 1.931$; $P > 0.05$). The hypothesis is therefore not rejected in the light of the result since the significant value is greater than 0.05.

Discussion of the Findings

One of the findings of the study revealed that the the level of teachers' knowledge of pupils with dyslexia in Ilorin West Local Government Area of Kwara State was low. This might be as a result of teachers' teaching experience and qualification or semina attended. The results of this findings confirmed the findings of Julie, (2016) who Conducted study on primary school

teachers' level of knowledge on learning disabilities (LD). It was concluded that teachers have robust knowledge on characteristics of learning disabilities and effective classroom strategies for students with learning disabilities. This findings is not in Agreement with Rudiyatu, (Mumpuniarti & Pujaningsih, 2017) carried out study on teacher's knowledge and experience dealing with children with learning disabilities in elementary school. The objective of the study was to provide initial information in the form of how primary school teachers are dealing with children with learning disabilities in order to investigate the gap between the real intervention with the suitable education services. The result of the study showed that teachers have not been perceived correctly that among children with learning difficulties there are children with specific learning difficulties or children with learning disabilities. This might be as a result of not attending seminars and confrereces that related learning dysabilities.

The finding of the study revealed that the the level of teachers' knowledge of pupils with dysgraphia in Ilorin West Local Government Area of Kwara State was low. The outcome of the study might be influenced by teachers variables such teaching experience and qualification. The results of this findings confirmed the findings of (Shari & Vranda, 2015), indicates that teachers' qualification and years of working experience contribute to teachers' knowledge regarding Learning Disabilities. The finding was in tandem with (Alahmadi & El Keshky, 2019) on primary school teachers' knowledge of specific Learning Disabilities's in Kingdom of Saudia Arabia indicated a different finding from both previously mentioned research. The finding show

education level of teacher is a significant contributor to their knowledge on specific Learning Disabilities. Meanwhile, the duration of teaching experience was found to be an insignificant variable, on teachers' knowledge of specific Learning Disabilities.

Another finding of this study showed that Oral was the most commonly adopted method of assessing pupils with dyslexia in Ilorin West Local Government Area of Kwara State. This finding disagreed with the findings of Lawrence, (2012) This mixed-methods study incorporated elements of survey, case study and action research approaches in investigating an at-risk child. Using an in-take interview, a diagnostic test, an error analysis, and a think-aloud clinical interview, the study identified the child's major presenting difficulties. These included: inability to use the four arithmetic operations (addition, subtraction, multiplication, division) efficiently; not understanding the relationship between units, tens and hundreds; using any two of the four arithmetic processes (+, - , x, ÷) in combination within one operation; treating each column as a separate problem; place value problems / wrong alignment of numbers; poor eye-hand coordination leading to dysgraphia; and memory lapses. The other problems that became apparent through this investigation and implied in the findings include possible causal factors such as dyscalculia, dyslexia, low self-esteem, low self-efficacy, and math anxiety.

Another findings of this study showed that paper and pencil was the most commonly adopted method of assessing pupils with dyslexia in Ilorin West Local Government Area of Kwara State. This might be as a result of assessment method that is widely used for general pupils', the

findings was in agreement with Sanna, (2013) who carried out study on what impact developmental dyslexia has on assessment and grading in the second language teaching of English in the Swedish educational system. The results show that the assessment and grading of dyslexic pupils is similar to the general practice. The teachers do not, however, accommodate the dyslexic pupils' needs in the teaching and carefully consider their difficulties when assessing and grading. The teachers especially in Ilorin west have sticked to a long standing and traditional way of assessing the pupils through paper and pencil method of assessment in primary school irrespective of individual differences.

Another finding of the study revealed that there was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on gender. Gender, male or female does not have difference in teachers' knowledge. The findings was in lined with study of (Kaigama & Madaki, 2020), Carried out study on the Influence of Gender Disparity on Students' Academic Performance in Government Technical Training School in Jalingo Taraba State. Significant gender difference exists only for dysgraphia. All other gender differences were not significant.

In addition, one of the findings revealed that There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on school type. This findings is in Agreement with Ayafou (2012) carried out to determine the effect of reflective teaching on the academic achievement of students with learning disabilities in Basic science in Ayamasa, Ekeremor Local Government Area of Bayelsa State. School type has no significant effect on the achievement of

students with learning disabilities. School location has significant influence on the academic achievement of students with learning disabilities.

Furthermore, the finding showed that there was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on teaching experience. The finding also showed that there was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on educational qualification. The findings also revealed that there was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on gender. The findings revealed that there was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on school type.

The finding of the study revealed that there was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on teaching experience and there was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on educational qualifications

CHAPTER FIVE

SUMMARY OF FINDINGDS, CONCLUSION AND RECOMMENDATIONS

This chapter focused on conclusion and recommendations. The purpose of this study was to investigate the teachers' knowledge and assessment methods of pupils with dyslexia and dysgraphia in Ilorin West Local Government Area, Kwara State. Based on the discussions, conclusions were drawn and recommendations were also made while suggestions for further studies were made.

Summary of Findings

1. The level of teachers' knowledge of pupils with dyslexia was low.
2. The level of teachers' knowledge of pupils with dysgraphia was low.
3. Oral was the most commonly adopted method of assessing pupils with dyslexia in Ilorin West Local Government Area of Kwara State.
4. Paper and Pencil was the most commonly adopted method of assessing pupils with dysgraphia in Ilorin West Local Government Area of Kwara State.
5. There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on gender.
6. There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on school type.

7. There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on teaching experience.
8. There was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on educational qualification.
9. There was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on gender.
10. There was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on school type.
11. There was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on teaching experience.
12. There was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on educational qualification.

Conclusion

This study examined teachers' knowledge and assessment methods of pupils with dyslexia and dysgraphia in ilorin west local government area, kwara state. It can be established that teachers' knowledge of dyslexia and dysgraphia were low. The study concluded that Oral was the most commonly adopted method of assessing pupils with dyslexia and Paper and Pencil was the most commonly adopted method of assessing pupils with dyslexia in Ilorin West Local Government Area of Kwara State.

However, it can also be concluded that, there was no significant difference in the level of teachers' knowledge of pupils with dyslexia based on gender. In addition to that, the observed significant difference in the level of teachers' knowledge of pupils with dyslexia based on, school type, teaching experience and teachers qualification, found not to have significant difference. More so, there was no significant difference in the level of teachers' knowledge of pupils with dysgraphia based on gender. Other moderating variables such as school type, teaching experience and teachers qualification, were found not to have significant difference in the level of teachers' knowledge of pupils with dysgraphia in Ilorin West Local Government Area of Kwara State.

Recommendations

Based on the findings of the study the following recommendations were made:

1 Teachers should try to improve themselves on daily basis on the suitable assessment methods in the classroom. The school propritors should also educate teachers on the appropriate assessment methods for dysleric and dysgraphia pupils through seminar/ workshops.

2 Teachers should be given boundless opportunities on knowledge of inclusive educations, especially on pupils' with learning disabilities through, self development, symposium and seminars.

3 Government should try to engage qualified teachers to teach at primary school level and also regularly organize workshops and seminars for the teachers in service to equip and update them on how to teach in the classroom. And also come up with guidelines requiring schools proprietors to adopt and implement measures to ensure that children are learning in a high quality to farcilitate teaching and learning for pupils with learning disabilities.

Limitation of the Study

Although this research was carefully prepared, the researcher is still aware of its limitations and shortcomings. First of all, the time only allowed the researcher to work on a single local Government Area instead of the entire Kwara Central Zone. The data gather would have been more robust and factual if the entire primary school in Kwara State were incorporated into the study population.

Secondly, only assessment methods, dyslexia and dysgraphia were examined, it would have been more comprehensive if all the aspects of learning disabilities were looked into.

Suggestion for Further Studies

The following suggestions for further research were made:

1 A similar study should be carried out in other Local Government of Kwara State to enrich the existing literature in the topic

2 Other areas of learning disabilities like dyscalculia, attention deficit and apparativites disorders can also be studied in future research.

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APPENDIX A

KWARA STATE UNIVERSITY MALETE, COLLEGE OF EDUCATION

DEPARTMENT OF EARLY CHILDHOOD AND PRIMARY EDUCATION

DYSLEXIA QUESTIONNAIRE (LSQ)

DEAR RESPONDENTS,

This test and rating scale is meant to elicit information on teacher's knowledge and assessment methods of pupils' with dyslexia and dysgraphia in Ilorin West Local Government Area of kwara state.

It is meant for research purposes only. All information supplied will be treated with utmost confidentiality.

Rafiat Arike Mustapha

Yours faithfully

DEMOGRAPHIC INFORMATION OF THE SCHOOL

TEACHERS KNOWLEDGE OF DYSLEXIA TEST (TKDT)

SCHOOL TYPE: PRIVATE ( ) PUBLIC ( )

GENDER: MALE ( ) FEMALE ( )

TEACHER QUALIFICATION: _____

TEACHER'S EXPERIENCE: LESS THAN 5 ( ) 5 – 10YEARS ( )

11 – 20YEARS ( ) 20YEARS ABOVE ( )

1. _____ is a learning disability that affects language processing.
   (a) Dyscalculia (b) Dysgraphia (c) Dyslexia
2. Dyslexia is a disability specific with the _____ subject.
   (a) Mathematics (b) Social Studies (c) English Studies
3. _____ can prescribe medication to help dyslexia.
   (a) Principal (b) Teacher (c) Physicians
4. Seeing letters and word backward is a major characteristic of _____.
   (a) Dyspraxia (b) Dyslexia (c) Dysgraphia
5. Dyslexia is manifested by a difficulty in learning to _____.
   (a) Read, Write and Bold (b) Read, Walk and Spell (c) Read, Write and Spell
6. Dyslexia pupils tends to have _____ rate of reading.
   (a) Fast (b) Normal (c) Slow
7. Pupils with dyslexia may have delay in _____.
   (a) Speaking (b) Crying (c) Sleeping
8. Dyslexia pupils usually have confusion of letters with similar _____.
   (a) Sound (b) Vocabulary (c) Grammar
9. Learners with vocabulary disability has lack of awareness of word _____.
   (a) Usage (b) Structure (c) Vocabulary
10. Dysgraphia interfere with pupils ability to _____.
    (a) Sleep (b) Learn (c) Play

APPENDIX B

TEACHERS KNOWLEDGE OF DYSGRAPHIA TEST (TKDT)

1. Pupils with dysgraphia often show a marked gap between _____ and _____.

(a) Oral & Written (b) Speaking & Talking (c) Crying & Dancing

2. Dysgraphia pupils tend to have _____ about details when writing.

(a) Readiness (b) Inattentiveness (c) Calmness

3. Pupils with dysgraphia usually have _____ speed when writing.

(a) Increase (b) Decrease (c) Active

4. _____ is part the of characteristics of dysgraphia pupils

(a) Poor organisation on the page (b) Good organisation on the page (c) Neat organisation on the page

5. Pupils with dysgraphia disorder generally have _____ handwriting.

(a) Legible (b) Illegible (c) Appropriate

6. _____ is a learning disability that affect cramped fingers, odd wrist, body and paper positions.

(a) Dyscalculia (b) Dyslexia (c) Dysgraphia

7. _____ is a writing based disability.

(a) Dyslexia (b) Dysgraphia (c) Dyscalculia

8. Pupils with dysgraphia always feel _____ when it comes to writing.

(a) Frustrated (b) Excited (c) Disappointed

9. Dysgraphia is a _____ disorder.

(a) Fine motor (b) Gross motor (c) Cognitive

10. A child with _____ will have difficulty in writing.

(a) Dyslexia (b) Dyscalculia (c) Dysgraphia

APPENDIX C

TEACHER ASSESSMENT METHOD OF DYSLEXIA RATING SCALE (TAMDRS)

	ASSESSMENT METHODS	ALWAYS	SOMETIMES	NEVER
S/N				
1	No assessment			
2	Close format test			
3	Paper and pencil			
4	Oral			
5	Standard reading comprehension measure			
6	Observation			
7	Retelling			
8	Port Folio			
9	One on one			
10	Reading test			

APPENDIX E

TEACHER ASSESSMENT METHOD OF DYSGRAPHIA RATING SCALE (TAMDRS)

	ASSESSMENT METHODS	ALWAYS	SOMETIMES	NEVER
S/N				
1	Paper and pencil			
2	Observation			
3	Oral			
4	No assessment			
5	One on one			
6	Close format test			
7	Retelling			
8	Reading test			
9	Standard reading comprehension measure			
10	Port Folio			

APPENDIX F

```
CORRELATIONS
  /VARIABLES=RELIABILITYONE RELIABILITYTWO
  /PRINT=TWOTAIL NOSIG
  /STATISTICS DESCRIPTIVES
  /MISSING=PAIRWISE.
```

Correlations

Descriptive Statistics

	Mean	Std. Deviation	N
RELIABILITYONE	59.70	7.226	25
RELIABILITYTWO	59.90	8.540	25

Correlations

		RELIABILITYONE	RELIABILITYTWO
RELIABILITYONE	Pearson Correlation	1	.822**
	Sig. (2-tailed)		.000
	N	20	20
RELIABILITYTWO	Pearson Correlation	.822**	1
	Sig. (2-tailed)	.000	
	N	25	25

**. Correlation is significant at the 0.01 level (2-tailed).

CORRELATIONS

```
/VARIABLES=RELIABILITYTHREE RELIABILITYFOUR
/PRINT=TWOTAIL NOSIG
/STATISTICS DESCRIPTIVES
/MISSING=PAIRWISE.
```

Correlations

Descriptive Statistics

	Mean	Std. Deviation	N
RELIABILITYTHREE	70.1000	1.77408	25
RELIABILITYFOUR	69.2000	2.19089	25

Correlations

		RELIABILITYTHREE	RELIABILITYFOUR
RELIABILITYTHREE	Pearson Correlation	1	.774**
	Sig. (2-tailed)		.000
	N	25	25
RELIABILITYFOUR	Pearson Correlation	.774**	1
	Sig. (2-tailed)	.000	
	N	25	25

**. Correlation is significant at the 0.01 level (2-tailed).