

PalArch's Journal of Archaeology  
of Egypt / Egyptology

ASSESSMENT OF TEACHERS' KNOWLEDGE ON INSTRUCTIONAL  
ACCOMMODATIONS FOR TEACHING CHILDREN WITH DYSGRAPHIA  
IN CALABAR METROPOLIS

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**Keywords: Teacher, Knowledge, Instruction, Accommodation and Dysgraphia**

**ABSTRACT**

This study assessed teachers' knowledge on instructional accommodations for students with dysgraphia. The study adopted quantitative research approach with survey as design. The study was guided by two research questions, and 50 teachers purposively sampled from the population of 100 teachers who attended teachers' retraining workshop organized by Cross River State Universal Basic Education Board. There was gender balance in the sample as they were 25 male and 25 female. A 20-item structured questionnaire tagged "Questionnaire on teachers' knowledge on the use of instructional accommodations" (QTKUIA) was used as an instrument for data collection. Descriptive statistics (simple percentage, and, bar chart) were used to analyze the result. The findings indicate that most teachers lack competency and knowledge to use accommodations for children with dysgraphia during instruction, examinations, tests and other assessment activities. This consequently limits the ability of the children to be active participants in instruction and related activities. It was recommended among others that training programmes on instructional accommodations be designed for teachers to improve their teaching competencies and management of dysgraphia. Stakeholders should formulate policies and enact legislation that will re-introduce handwriting into school beginning with handwriting readiness skill at early childhood education and back up

instructional accommodations to provide participatory classroom environment for all learners in the Nigerian school system.

## INTRODUCTION

Dysgraphia a sub-type of learning disabilities which is a category of exceptionality. This disability is globally acknowledged as a source of concern to parents and learners alike. It is one of the disabilities with high prevalence in many classes especially in inclusive schools. In America, even with the level of development of special education the prevalence of dysgraphia is still high compare to other categories of learning disabilities. In Nigeria it is seemingly neglected in terms of diagnosis, research, and remediation despite its academic and psychological implications on the learners. Diagnostic and statistical Manuel of Mental Disorders 5<sup>th</sup> edition (DSM-5) grouped dysgraphia under specific learning disorders without a unique definition. This implies that there is obvious possibility of the disability to co-exist with others in the same group. Dysgraphia also known as handwriting disorder is a disability characterize by poor letter formation, letter spacing, poor alignment, poor pencil grip, frequent finger and hand fatigue during writing, poor posture etc resulting in illegible written sample as result of dysfunction of fine motor coordination. Ability to write is a complex process that requires many skills such language skill, visual processing skill, auditory skills, perceptual-motor functioning skill, Executive functioning skill among others. Impairment in one or more of these can result to handwriting disorder.

Tseng and Chow (2000) study, revealed that dysgraphia among school age children is estimated to be 65% in rural schools with poor family background and 35%, in urban schools. Also, Kushki, Scwellnus, Iiyas and Chau, (2011) found out that 10%, to 30%, of children in schools experience difficulties in writing although the exact prevalence depends on the definition of the disabilities. Although dysgraphia may not occur in isolation, it is commonly associated other disorders such as dyslexia, attention deficit hyperactivity disorder and the prevalence of the disability in comorbidity is estimated to be 90-98% depending on the criteria for identification and assessment. A comparison of prevalence of these disabilities in the two countries indicates and confirmed that it is high incidence disability that cuts across race, gender, economic status and religion (Kushki, Scwellnus, Iiyas and Chau, (2011). The heterogeneous nature of this disability is responsible for the high rate of children and adults with this handicapping condition. It heterogeneity implies that it has sub-types according to American Learning disability Association (2017) and Bartonova (2014), International dyslexia Association – IDA (2000), Deuel (2011), Kay (2007), dysgraphia as a handicap condition has the following types, dyslexia dysgraphia, motor dysgraphia, spatial dysgraphia, phonological dysgraphia and lexical dysgraphia.

As noted earlier, the impression of stakeholders about dysgraphia in Nigeria is that it is not a disability or disability of the unserious children. This is reflected in the non-inclusion of handwriting instruction in public schools with little no attention on research. This why McCloskey & Rapp, (2017), Knoselauch, (2008), NCLD (2014) concluded that the effect of dysgraphia and the role of handwriting in school and in life generally is obtrusively undermined. Ability

to write legibly is a necessary condition to succeed in school and communicate with others in writing in the society remain sacrosanct. Despite the use of technology for interaction, there are situations one needs to communicate with friends, teachers and parents through writing. Some employers prefer pencil/pen and paper test for their prospective employees. In the school setting as noted above, learners are expected to copy notes, do assignments, writes examinations and other class work. Success in all these activities depends to a reasonable extent how the child can write what can be read in an acceptable pattern (Rosenbleum, Weiss, & Parush, 2003, 2004). To do this, the individual is requiring to develop and use complex skills such as motor and information processing skills, perceptual skills and cognitive skills. While those without dysgraphia may not have problem with these skills, but those who are dysgraphic have significant difficulty in these areas resulting to handwriting disorder (Volman, Brecht & Jongmans, 2006, Akella & Premavathy, 2015). Their written sample is often characterized with inappropriate spacing, letter formation, size, poor alignment, pencil grip, airtime and undue pressure on paper. This deficit impact negatively on the psychology, learning outcome, and learners' level of participation in classroom activities like taking notes in class, completing classwork, long-term assignments and performing well in conventional assessments with corresponding tendency of eventual withdrawal from school. In a non-school setting, those with handwriting deficit have difficulties playing the role of secretary in organizations (Mamma, 2019, Obatta, Adama, & Onu, 2020. Graham, 2010).

To enhance the opportunity of learners with this condition the concept of instructional accommodations and its application become obvious in the classroom. Instructional accommodations are practices and procedures that provide alternatives to performing instructional tasks without lowering the standard, value, purpose of the instruction and assessment. They aimed at providing access to students with disabilities in the tenet of inclusion and design for universal learning. They allow the child to respond to instruction in non-traditional ways. They have become emerging features in education of learners with disability (dysgraphia) hence teachers' especially regular classroom teacher needs to brace up to the current trend by being knowledgeable on the disability and how to administer accommodations professionally to eliminate the effect of the disability as well as reduce the frustration children experience during written task. Teachers are primary stakeholders in the teaching and learning process. The success of the process depends 50% on his personality and professional competency. Accommodations as emerging trends in the education of persons with disabilities have increased teachers' responsibilities as he/she is duty bond to administer and evaluate the success of accommodations. More so, as an active member of the child's IEP they have be included in the education programmes. To function in the team and facilitate the child's ability to learn effectively he/she must be knowledgeable on how to make provision for accommodations in the education of children with dysgraphia during instruction and assessment (Graham, Harris & Chambers, 2016). Teachers' knowledge on instructional accommodations begins with taking vital decisions on the relationship between disabilities and the proposed accommodations with the primary objectives of giving them access to general education curriculum and equal participation in all instructional activities.

NCLD (2006) studied teachers' knowledge on accommodations and found out that out of 25 teachers sampled, 20 had sound knowledge on accommodations. The study further revealed that teachers without knowledge of the disability poses a barrier to learning, and the standards that should be maintained in administrating accommodation will be compromise. This knowledge deficit contributes to the frustration children experienced in attempt to maximize their learning potentials. In a related study kalmala and Ramganes (2013) confirmed that teachers' knowledge of subject matter, instructional task and the child present level of performance are cardinal to the success of using accommodations in teaching-learning process. The authors noted that without basic knowledge on the above, accommodations become potential threat to the process of instruction, undermine the quality and value of curriculum as well as benchmark for assessment. The progress or success of accommodations requires a periodic evaluation, therefore, teachers' knowledge on effective evaluation of accommodations is a key component of his/her competency. This ability is very necessary so that changes can be made where it is possible in the interest of the children with dysgraphia. Vocational and Education Services for Individual with Disabilities (2006) studied teachers' preparation for education of persons with learning disabilities, the study revealed that 15 out of 50 were trained on the use of instructional accommodations for each sub-type of learning disabilities; 35 declined been trained on the subject matter and could not professionally provide guide to learners who need accommodations to learn.

The relevance of teachers in teaching-learning process can be seen from his/her role in instruction delivery process, evaluation or assessment of students, his methodology, and knowledge of subject matter among others. Similarly, teachers' knowledge on the practice of accommodations during assessment is vital and sensitive part of competency required for teaching children with handwriting disability. Karande (2008) studied current challenges of managing handwriting disability in India and revealed that teachers lacked knowledge on how to apply accommodations in assessment of their clients. This was seen as a hindrance to the provision of quality and inclusive education to learners with dysgraphia and the achievement of the goals of global education policy that emphasized equity and access to education. The author posited that teacher competency on accommodation starts from his/her knowledge of the disability, how it affects learners' performance in school-based activities like examinations, tests, and educational achievements.

In a related study carried out by Chatterjee (2009), findings showed that Indian teachers are still not trained on how to manage dysgraphia among school-age children. The findings specifically revealed that teachers lack competency on how to apply accommodations in the assessment of children/adults with dysgraphia. The above study corroborates Obani (2006) who studied teachers' ability to manage learners with the disability and discovered that 85% of both regular and special education has no professional knowledge on methodology of teaching learners with the condition as well how accommodations can be used during instruction and assessment to provide an opportunity for those with the disability to express what they have learnt. Khatib (2007) surveyed general education teachers' knowledge of hand writing disorder and accommodations

and noted that teachers in Jordan had neither knowledge on the disabilities nor on accommodations consequently, learners were not adequately educated in compliance with global best practices. A comparative insight of these reviews show that most teachers lack knowledge on this disability and how to leverage on accommodations to enhance chances of accessing basic education for survival and meaningful contribution to national development. This trend is common in countries with underdeveloped special education practices.

A typical Nigerian classroom or school is made up of myriad of learners with learning disabilities, among these disabilities is dysgraphia. This condition manifests in significant deficit hand writing variables despite age, intelligence, level of education due to neurological disorders and lack of fine motor coordination skills. Learners with dysgraphia lack the basic skills of hand writing mechanism such as formation of letters, spatial features, ergonomic factors and handwriting readiness skills that lurch a child into complex task of writing. As result of the aforementioned, children with dysgraphia gradually develop negative attitudes to school tasks that involve writing (handwriting arrest) because of perceived stress, frustrations and potential threat of failure and complain from teachers and classmates about their written products or samples. The disability impact adversely on school achievement, learner's self-esteem, chances of employment and ability to contribute to national economy.

In the 60s handwriting was a basic school content area where handwriting instruction was considered seriously at primary school level. It was evidenced that at the end of primary education children had developed good handwriting skill as foundation for success in life. It is unfortunate that Nigeria school system has no provisions for handwriting instruction especially in public schools just like teachers training institutions obtrusively instinct handwriting as content area in the task of teachers' preparation for inclusive pedagogy and nation building. This is responsible for the seemingly increased in the prevalence of the disability, such total neglect of conscious efforts at developing the skill even in early childhood education programme and primary school is more costly than what would have cost government to re-introduce handwriting curriculum in the school system. The implications of this narrative is that, handwriting readiness skills such as identification and use crayon, other writing instruments, making of strokes, painting, correct pencil grip, posture among others should be giving adequate attention right from early childhood education to provide building block for handwriting instruction.

Professionally, teachers are by training and certification charged with responsibilities to ensure that all learners including those with dysgraphia maximize their potentials to learn. The ability to achieve this depends on their capacity or competence to apply research-proven accommodation strategies to eliminate or reduce limitations imposed by disability. Research shows that most teachers and some special educator lack professional knowledge on how to administer accommodations to reduce the effect of dysgraphia and give them equal opportunity like other learners to participate meaningfully and competitively in all classroom activities that requires writing. This has devastating effects on the learners as they are mere spectators in teaching-learning process, become frustrated, psychologically unbalanced to learn,

performed poorly and eventually drop out of school. Thus, concerned professionals often ask, what is teachers' knowledge on instructional accommodations and assessment for students with dysgraphia? It is this concern of how teachers appropriately and professionally use accommodations during instruction and assessment to maximize the benefit instructional process in Nigeria that necessitates this study on assessment of teachers' knowledge on instructional accommodations for children with dysgraphia in Nigeria.

### *Statement of Problem*

Handwriting is one of the skills required for effective learning in formal education as more than 80% of school base activities involves ability to write in Nigeria regardless of influence of technology. As a skill, it is learnt just like other language skills. While some learners may not have challenges with this skill others with dysgraphia have significant deficit in using it to maximize their learning potentials. Despite this disability, educational policy and legislation still requires that this category of learners should access quality education through the use of current pedagogical trend like instructional accommodations. Unfortunately, research and experience has revealed that teachers as major stakeholders in instructional process for children inclusive of those who are required to use accommodations to help children actively participate in all learning activities in school/classroom lack conceptual knowledge of instructional accommodations and its application during instruction and assessment activities. Consequent upon this dearth of teachers' knowledge, learners with the disability are passive in instructional process, get frustrated and psychologically unready for school related task that involves handwriting. More so, children's right to quality education characterized by meaningful participation in all activities in the classroom is limited and at some point, they are excluded and denied opportunities associated with quality education.

### *Purpose of study*

Instructional accommodations have become part of education of learners with special need conditions with implications on teachers as major stakeholders in teaching-learning process. Based on their role, it has become imperative to be able to use instructional accommodations during instruction and assessment. Specifically, the aims of this study are:

- To determine the knowledge of teachers on utilization of instructional accommodations in instructional delivery for learners with dysgraphia
- To determine the knowledge of teachers in utilization of instructional accommodations during assessment of learners with dysgraphia.

### **RESEARCH QUESTIONS**

This study is guided by two research questions framed thus:

1. What level of knowledge do teachers possess on instructional accommodations for children with dysgraphia?

2. What level of knowledge do teachers possess on assessment accommodations for children with dysgraphia?

### **METHODOLOGY AND DESIGN**

The study adopted descriptive survey design; it was considered most appropriate because it afford the researchers opportunity to gather data that gives actual picture of the studied sample. The size of the sample for study was large enough to enhance generalization of findings considering population in special needs education research practice. Interest to participate in the study was gotten by using a consent form which was distributed on the first during the registration for the workshop and retrieved at end the first day. Research ethics that guide the conduct of research within the country was strictly followed.

#### ***Population***

The population of study consist of 100 teachers were selected from schools across the state to participated in retraining workshop organized by Cross River State Universal Basic Education Board. The ministry of Education (MOE) through Local Government Education Authority (LGEA) requested head teachers and principals to nominate teachers that participate in retraining during long vacation, through this process names of those selected will be published and pre-informed them to prepare for workshop on set date. The number of teachers is determined by the objective (s) of workshop and availability of approved budget for the training.

#### ***Sample and sampling Technique***

The sample for this study was 50 teachers as participants who were purposively sampled and used. Although gender was not one of the variables studied the sample had gender balance as there were 25 male and 25 female.

#### ***Instrument for data collection***

A structured questionnaire tagged, "Questionnaire on teachers' knowledge on the use of instructional accommodations" (QTKUIA) with 20 items and four response scale of, poor knowledge (PK), fair knowledge (FK), average knowledge (AK) and above average knowledge (AAK) was developed, validated experts in educational measurement, learning disabilities and used as instrument for data collection. The reliability of 0.83 was determined using test-rest method. The instrument was administered directly to the participants and was returned within three days of the workshop, this contributed to 100% returned rate. Data were analyzed using descriptive statistics (simple percentage and bar chart).

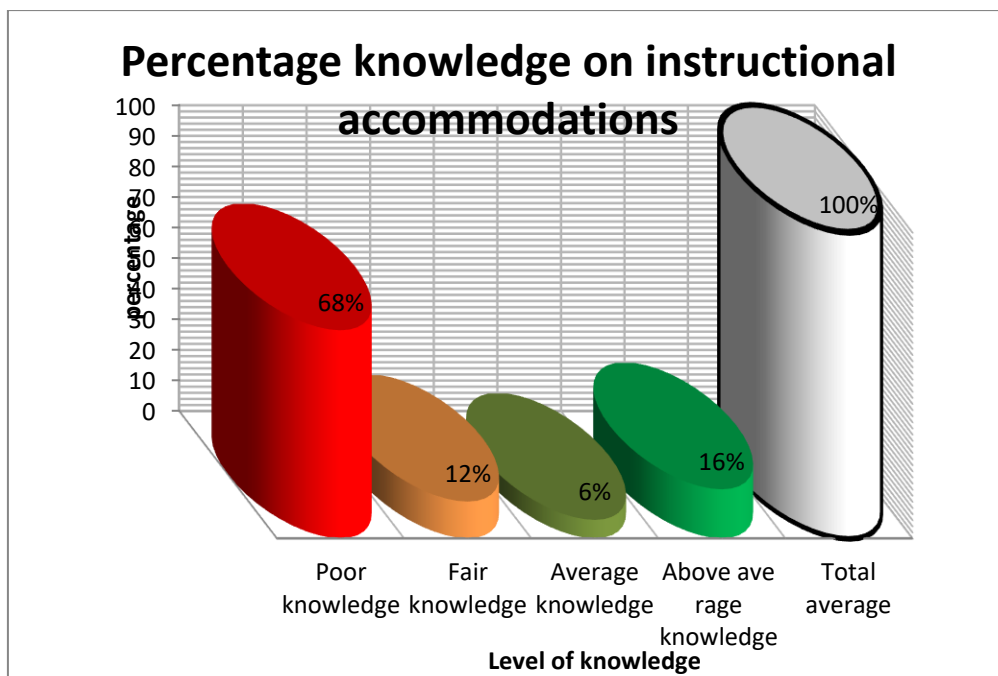
### **PRESENTATION OF RESULT**

#### ***Research Question 1:***

What level of knowledge do teachers possess on instructional accommodations for children with dysgraphia?

**Table 1:** Number and percentage level of teachers' knowledge on instructional accommodations

Level of knowledge	Poor knowledge	Fair knowledge	Average knowledge	Above average knowledge
Number of teachers	34	6	3	7



**Fig 1.** bar chart showing Knowledge on Instructional Accommodations for Children with dDysgraphia

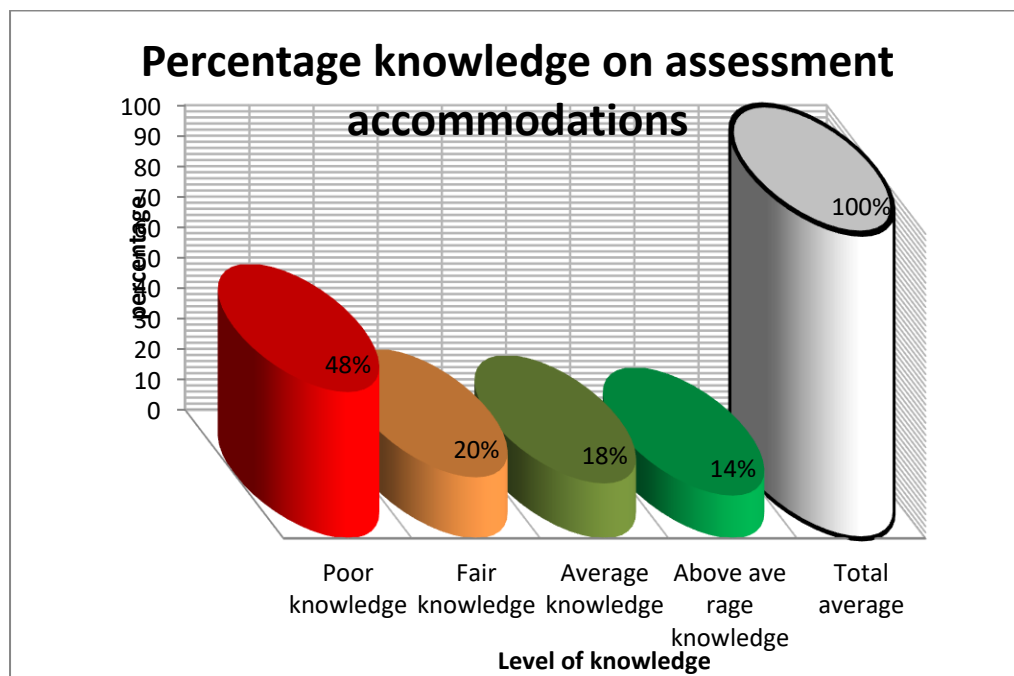
Result presented in Figure 1 and table 1 above shows that 34 teachers (68%) have poor knowledge on instructional accommodations during teaching process, 6 (12%) have fair knowledge while 3 (6%) and 7 (14%) of the 50 teachers have average and above average knowledge on instructional accommodations for children with dysgraphia. The sum of percentage of teachers with fair, average and above average knowledge on the subject matter is 32% (16) still lesser than those with poor knowledge on instructional accommodations.

Research question 2: What level of knowledge do teachers possess on assessment accommodations for children with dysgraphia?



**Table 1:** Number and percentage level of teachers' knowledge on assessment accommodations

Level of knowledge	Poor knowledge	Fair knowledge	Average knowledge	Above average knowledge
Number of teachers	24	10	9	7



**Fig 1.** Bar chart showing Knowledge on assessment Accommodations for Children with Dysgraphia

From the result in Table 2 and figure 2 it is obvious that 24 (48%) teachers have poor knowledge on how accommodations can be professionally used during assessment for children with dysgraphia. It also reveals that 10 (20%), 09 (18%) and 07 (14%) of teachers have fair, average and above average knowledge on accommodations for learners with this disability. A comparison of teachers with fair, average, above average knowledge 26 (52%) and those with poor 24 (48%) indicates that former is higher than the latter.

**DISCUSSION OF FINDINGS**

Findings on the first research question that assess teachers' knowledge on instructional accommodations during teaching process reveals that most teachers in both regular and special school lack adequate professional knowledge on instructional accommodations for students with dysgraphia. This study agrees with NCLD (2006) and VESID (2006) findings. From the result, it is inferred that students with dysgraphia are mere passive in pedagogical interaction, this negates core value of teaching and learning process. It is during instruction that the skill is need to document salient points of the lesson. This result is at variance with that of Prunty and Barnett (2017) that report the use of digital tablet by students with dysgraphia during instruction. The authors

further reports that the type and severity of the impairment suggest the need for range of devices as accommodations strategies for effective learning. Prunty, Barnett, Wilmot and Plumb (2016), reveal that teacher's role in the use accommodations for students with dysgraphia during instruction is the gateway to academic success as it supports participation in classroom and provide valuable source for self-esteem for children. Unlike this finding some teachers in Calabar metropolis are deficit in the practice of emerging strategies for educating student with handwriting disorder. The implication of the present findings is that students with this handicapping condition do not benefit from instruction as they have nothing to study after words, quality education/instruction is compromised and consequently, they are not empowered for self and national development which is the main thrust of education as tool (FGN, 2004). It can equally be inferred that students' educational needs that are core to the IEP team are neglected by the school and other concerned stakeholders. This study adds to empirical evidences in Obani (2006), Orim (2014) and Lere (2009, NASET 2012) on teachers' pervasive idea about accommodations for students with handwriting disability in Nigeria.

The result of this study is mandate on teachers training institutions to include emerging and global trends such as instructional accommodations in their training programmes to produce teachers that do not just provide inclusive instruction but fit into the global and competitive labour market. This current study is at variance with the trend in America and Britain. In these countries and few others teachers as members of the child IEP are knowledgeable on the subject matter. This is responsible for quality and professional service delivery for learners' as well low learning outcome of the students/pupils. This is further evidence in the poor performance of learners in both internal and external examinations like junior secondary school certification (JSSCE), senior secondary certificate (SSCE), Unified Tertiary Matriculation Examination-UTME conducted by West Africa Examinations Council (WAEC) National Examinations Council (NECO), State Ministry of Education and Joint Admission and Matriculation Board respectively. The implication of the performance is that they candidates may not find placement in any Nigerian University where providence intervened, they offered courses that are not the candidate's choices which translate to wrong placement and career choice.

Findings on teachers' knowledge on accommodations during assessment activities like test, examination, class work, assignment etc indicates that teachers lack the capacity to use accommodations in assessing the children performance in the content area/ mastery level. This study is supported by Karande (2008) and Chatterjee (2009) findings that record lack of teachers' competency in utilization of instructional accommodations for instruction and assessment of children with dysgraphia. Also, Khatib (2007) revealed that most teachers in Indian and Jordan have no professional ability to assess students with disabilities such as those with dysgraphia in global best practices. The finding implies that students with hand writing disability in school are not adequately and professionally giving opportunity to be examined on content areas. They fail to understand that most learners with dysgraphia have challenge with how to write what they have master. This couple with psychology of the disability and examination put in a disadvantage position even they would done well in

any form of assessment. Where sparing efforts are made in this direction the students are wrongly graded because of teachers' ignorance of global best practices in the practice of accommodation during assessment. This also means that it is not the disability that frustrates the students/pupil's effort to learn and maximize their potential for self-development but the teachers and the dysfunctional Nigerian school system as evidence in the findings of this study.

### **CONCLUSION**

All learners in the school including those with dysgraphia have right to access quality education despite their disability. To achieve this, handwriting instruction should be re-introduced into school curriculum in public school beginning from early childhood education for the purpose of teaching handwriting readiness skills. Current trend in education of PWD such as instructional accommodations should be given professional attention by stakeholders in the area of teachers training on the subject matter, providing legislation and awareness on instructional accommodations for children with disabilities in Nigeria like other developed countries, until Nigeria achieve this feat, learners with disabilities will not have equal opportunity to participate in all school activities especially academic ones like instruction and assessment.

### **RECOMMENDATIONS**

Based on the findings of the study, it was recommended among others that;

1. The capacity of Nigerian teachers particularly those who teach learners with disabilities should be retrained and equip with knowledge on current trend in special needs education practice to cope emerging challenges in the globalized world.
2. Stakeholders particularly government should provide legislative and policy frame work that will enhance and promote the use of instructional accommodations in education of Persons with Disabilities (PWDs) inclusive of those with dysgraphia in Nigerian schools.
3. Professional stakeholders in education of children with special needs as such National Association for Exceptional Children (NAEC), National Association Special Education Teachers (NASSET) among others should create awareness on the use instructional accommodations for learners with dysgraphia in schools.
4. Persons with disabilities should lobby concerned stakeholders particularly parents/guardians to have positive depositions towards instructional accommodations as part their IEP and a strategy to provide equitable access to learning for all learners to increase their chances of success in school.
5. Handwriting instruction should be giving the desired priority right from early childhood education programmes to serve as build block for future academic success and development of the child.

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