

Teachers' use of inclusive education practices for learners with neuro-developmental disorders in Enugu State, Nigeria

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Abstract

The inclusive educational framework adapts the environment and resources in response to the differing needs of all learners. Nigeria, like many countries around the world, has taken steps to improve education for persons with disabilities through inclusive education. With the growing prevalence of neuro-developmental disorders (NDDs) in schools, teachers are faced with additional challenges in determining classroom practices that can address such a broad spectrum of conditions that make learning difficult. In this cross-sectional study, teachers' use of inclusive practices for students with NDDs was examined in Enugu state, Nigeria. The 61-item INCLUSIO scale was used to collect data from 240 teachers from 10 purposively selected primary and secondary schools in Enugu State. Generally, teachers have reported being unprepared to teach students with NDDs and not having the resources necessary to provide inclusive education for students with NDDs. Findings suggested a disconnect between inclusive educational goals and current educational practices for children with NDDs. Improved teacher training and supervision, a shift in pedagogical perspectives regarding disabilities, better collaboration among community service providers, as well as systematic evidence-based implementation plans could all contribute to increasing inclusive practice.

Keywords: Inclusive education, neuro-developmental disorders, teachers' practices, learning support, Nigeria, teacher training

Introduction

Educational inclusion (EI) is a critical concept for achieving justice and equity for students with disabilities in the education system. Inclusive education tends to tailor the environment to the diverse needs and desires of individuals, rather than requiring them to exclusively deal with the challenges of a given context (Edwin et al., 2019; Sambo & Bwoi, 2015). Several countries have shifted away from the belief that children with disabilities cannot be adequately educated in regular schools and should attend special schools to the belief that practically all children with disabilities should be able to succeed in regular schools (Hayes & Bulat, 2017). However, placing disabled children in regular schools does not constitute inclusion and may be detrimental to the children's development. Inclusion requires the creation of a rich, accessible learning environment that is tailored to the needs of all students (Edwin et al., 2019; Ferguson et al., 2019; Ngwoke et al., 2020). Nigeria has taken steps towards inclusive education (Adetoro, 2014; Fuandai, 2010), following the United Nations Convention on the rights of individuals with disabilities (United Nations, 2006), which states that persons with disabilities have the right to

protection against discrimination on all grounds, including education.

Previously, the inclusion of disabled students in general education classrooms was contingent upon their exhibiting demanding behaviours, sensory processing difficulties, anxiety, and adaptive and cognitive deficiencies (Bölte et al., 2021; Fuandai, 2010). In most cases, inclusive education is defined as instruction delivered as a part of mainstream education and carried out by ordinary school staff, possibly under the supervision of specialists (Ferguson et al., 2019). Additionally, the method is viewed as one that emphasizes enhancing the learning environment, routines, procedures, pedagogy, staff behaviours, and attitudes, rather than exerting influence over pupils, as the term "integration" implies. The specific inclusive educational procedures and what inclusion should look like in practice for teachers and other school personnel is often under-researched (Bölte et al., 2021; Efthymiou & Kington, 2017).

Research on the most effective ways to engage learners with disabilities in education in order for them to achieve their full potential is necessary with the

growing incidence of learners with a variety of disabilities. This is of particular importance due to greater awareness of non-tangible handicap issues that inhibit the education and development of learners, such as neuro-developmental disorders (NDDs). Neuro-developmental disorders arise from alterations in the maturation, architecture or functioning of the developing brain. This term refers to a wide range of conditions resulting from aberrant brain development and functioning (Snowling et al., 2020). As a result of delayed brain function, students with neuro-developmental disorders may experience difficulties with cognition, communication, behaviour, and/or motor skills (Morris-Rosendahl & Crocq, 2020). The American Psychiatric Association (APA) notes that neuro-developmental disorders are a range of disorders that are caused by a breakdown in the relationship between the brain and behaviour.

The symptoms of these disorders are characterized by persistent developmental impairments that begin during a child's early years of development and last throughout the child's lifetime (APA, 2013; Florian & Linklater, 2010; Morris-Rosendahl & Crocq, 2020) according to the study,

those with Neuro-developmental disorders include attention deficit hyperactivity disorder (ADHD), autism spectrum disorder (ASD), communication disorder, motor disorder, particular learning disorder, and intellectual disorder. Neuro-developmental disorders are common with an estimated prevalence of 16.2% to 17.8% in the United States (Bölte et al., 2021; Volkmar et al., 2014; Zablotsky et al., 2019) and 0.9 to 12.7% in Africa (Bakare et al., 2016; Namazzi et al., 2019). The disorders are currently incurable, not necessarily pathological, but often cause lifelong challenges and constitute significant burdens to the family and society (Bitta et al., 2017). The life-long nature of and the limitations imposed on learners by NDDs' conditions make their inclusion a societal responsibility, given that the society is determines the individual outcomes (Volkmar et al., 2014; Zablotsky et al., 2019). This is particularly true for educational settings, where the exclusion of students with NDDs has become a major challenge. (Volkmar et al., 2014; Zablotsky et al., 2019)

To date, scholastic failure, exclusion and absenteeism are widespread concerns among the NDDs' population (Black & Zablotsky, 2018; Hatton, 2018). Such

negative outcomes could be linked to a general failure to implement inclusive education practices in schools. Inclusive education practices entail the use of a diversity-based education framework provided as a part of regular education that is implemented by regular school staff under the supervision of specialists (Forlin, 2010; Leifler, et al., 2020). It involves organizing and improving the learning environment, pedagogy, procedures, staff behaviours, routines, and attitudes in a way that all learners (including those with disabilities) can learn to the optimum potential (Leifler, et al., 2020). Thus, inclusive education practices seek to manipulate the learning environment and resources, rather than manipulating the learner to fit into the environment.

In implementation, inclusive education involves some generally accepted evidence-based practices that have proved effective for attending to learners' diversity (Forlin, 2010). Apart from the general inclusive education strategies, teachers who have students with NDDs have additional challenges that need more specialized practices. For instance, Bölte et al. (2021) identify inclusive education practices for learners with NDDs to include: assessment of support

needs, individualized support, structured learning environment, schedule/teaching changes, functional response to behavioural characteristics, cooperation with parents, peer relations, and staff education/professionalism. Evidence suggests that inclusive practices have continued to be inadequate for students with NDDs (Fernández-Archilla et al., 2020). The extent to which students with NDDs are currently served in normal classrooms is not unknown. Further, the specific practices of mainstream teachers to accommodate learners with NDDs and help them develop to their fullest potential have been under-researched. Moreover, there is limited information regarding the extent to which teachers in Nigeria implement inclusive practices as highlighted by Bölte and colleagues.

Relatedly, Nigeria's educational policy is short of specific expectations regarding the inclusion of learners with NDDs (Adetoro, 2014, 2014; Eskay, & Oboegbulem, 2013; Edwin et al., 2019; Sambo & Bwoi, 2015). According to Eskay, & Oboegbulem, (2013), inclusive education in Nigeria has several weaknesses in terms of policy mandates, placement issues, assessment, least restrictive environment, identification and referral, non-biased assessment, and

instructional programming, as well as funding, IEP (Individualized Education Programming), and policy mandates. Other studies have submitted that the Nigerian government is greatly challenged by the implementation of inclusive education (Eskay, & Oboegbulem, 2013; Odo et al., 2021). Hence, a study is needed to monitor progress regarding how teachers make efforts to include learners with NDDs in the classrooms. Consequently, the purpose of this study was to investigate inclusive education practices in Nigerian schools for students with NDDs who are generally underserved in educational settings in Nigeria. The outcome of the present study will be useful to query the policy implementation in Nigerian schools.

Method

Participants and sampling

A sample of 240 teachers (76 percent female and 24 percent male) from 20mainstream public primary and secondary schools in Enugu State participated in the study. Participants' age ranged between 25 and 57 years (Mean age= 36.0). Purposive sampling was used to recruit schools once the head teacher showed an interest in participating and receiving statistics on

their school's inclusive practices. The schools that participated in the study include ten inclusive schools (Secondary Schools) and 10 mainstream primary schools.

Measure

The INCLUSIO questionnaire (Bölte et al., 2021), which contains 61 items on inclusion and background information on prior NDD schooling, was used to document how schools work actively and systematically to include studentswith NDDs. The questionnaire was structured on a 3-point scale of Yes=2, Not Sure=1 and No=0.The INCLUSIO consists of 8subscales that measure being prepared to conduct inclusive practices for learners with NDD inclusive schools: Assessment of support needs (7 items), Individualized support (10 items), Structured learning environment (8 items), Schedule/teaching changes (7 items), Functional response to behavioural characteristics (6 items), Cooperation with parents (6 items), Peer relations (8 items), and Staff education/professionalism (9 items). Each subscale has a total score that determines whether it is practised or not (See Table 1). In a Sweden sample, INCLUSIO had a Cronbach's alpha of $\alpha = .87$, and internal consistency values of $\alpha = .87$,

=.70-.89 for its subscales. It takes about 25 minutes to complete. Items can be answered with a Yes (indicating inclusive practice), Not Sure (indicating doubtful inclusive practice), and No (meaning no inclusive practice). INCLUSIO is designed as a criterion-based instrument, with the expectation that a

vast majority of items will be answered "Yes" in the case of "good enough" inclusive practice. So, to test the usability of the INCLUSIO questionnaire in the Nigerian population, it was trial tested on 35 teachers in Anambra State, Nigeria. Crombach Alpha analysis gave a reliable index ($\alpha=.88$).

Table 1: Guidelines for scoring and decision-making using the INCLUSION questionnaire

Measure	Min-	Criterion	Decision for Inclusive
	Max		Practice
Assessment of support needs	0-14	7	Score ≥ 7
Use of individualized support	0-20	10	Score ≥ 10
Implementation of a structured learning environment	0-16	8	Score ≥ 8
Individual changes applied to schedule/teaching	0-14	7	Score ≥ 7
Functional response to behavioural characteristics	0-12	6	Score ≥ 6
Cooperation with parents	0-12	6	Score ≥ 6
Consideration of peer-relations	0-16	8	Score ≥ 8
Staff education/professionalism	0-18	9	Score ≥ 9

Data collection and analysis

Data for the study were collected by the researcher in collaboration with two research assistants. Inclusive schools were visited between September and

November 2021. INCLUSIO questionnaires were randomly distributed to the teachers at each school visit. All questionnaires were administered and collected on the spot. All questionnaires distributed were

retrieved. Inclusion in the study was based on the participants' willingness to participate. Data collected were subjected

to descriptive statistics (Mean, Standard deviation and percentages). Data were presented in tables and figures.

Results

Table 2: Rating of teachers and heads of schools on the inclusive practices for learners with neuro-developmental disorders

Measure	Head of Schools		Teachers		Total		RM
	X	SD	X	SD	X	SD	
Assessment of support needs	8.34	1.33	.09	0.3	8.67	.82	7
Use of individualized support	7.51	1.07	9.19	1.02	8.35	1.05	10
Implementation of a structured learning environment	.05	1.99	.09	.58	6.5	1.29	8
Individual changes applied to schedule/teaching	.05	1.4	.06	2.10	5.5	1.75	7
Functional response to behavioural characteristics	.06	2.11	.10	1.00	.08	1.55	6
Cooperation with parents	.04	.31	.09	1.40	6.5	.86	6
Consideration of peer-relations	.10	1.03	.10	.31	.10	.44	8
Staff Training/professionalism	8.00	.61	6.78	1.17	7.39	.89	9

Data in Table 2 revealed the extent to which inclusive practices were in place in the inclusive schools in Enugu State,

Nigeria. According to the Table, the head of school rated the assessment support practices for children with NDDs at 8.34

for their schools, while the teachers' rating was 9.00. The total mean rating of both teachers and heads of schools on the subscale was 8.67, which was greater than the criterion score (Score ≥ 7). This indicates that the inclusive schools in Enugu State assess and follow support plans for learners with NDDs. The use of individualized support was rated low by the participants, teachers (7.51 ± 1.07), school heads (9.19 ± 1.02), and total (8.35 ± 1.05). The total rating of the subscale did not meet its criterion score of 10. Therefore, individualized support for learners with NDDs was lacking in schools.

Going by the total score, the implementation of a structured learning environment for learners with NDDs was rated below (6.5) the criterion score (8) in the subscale. This indicates that the school environment falls short of the needs of learners with NDDs. Further, considering the application of individual changes to schedule/teaching, the participants' mean rating of their school practices (5.5) also falls short of the criterion score of 7. This outcome suggests that the schools are not critical in monitoring and following up on the learners' changes, or building them into school practices. In the subscale of

functional response to behavioural characteristics, the participant's mean rating was 8.0, which is higher than the criterion scores for the subscale (6). This implies that NDD students' needs are known in the school, and there are individual crisis plans for behavioural support and self-regulation (see Table 2).

In the subscale of cooperation with parents, the mean score of participants' rating as shown in Table 2 was a little higher (6.5) than the criterion score of 6. This outcome suggests that inclusive schools collaborate with parents to support children with NDDs. In consideration of peer relations, the participants noted that their schools are prepared to support peer relationships with a mean score of 10, which is greater than the criterion score of 8. This means that among other peer relationship support practices, the schools apply groupwork to take into account the needs of students with NDDs. Staff training/professionalism was low (7.39) compared to the criterion score of 9.00. This means that the staff of inclusive schools are not professionally trained to build a support-oriented view of students with NDDs. The staff do not have regular training from outside experts on NDDs.

Deductions can be made from these interpretations that among the right dimension of inclusive practices, only four were practised in the schools, including consideration of peer relations, cooperation with parents, functional response to behavioural characteristics,

and assessment of support needs. On the other hand, the use of individualized support, implementation of a structured learning environment, individual changes applied to schedule/teaching, and staff training/professionalism are lacking in inclusive schools.

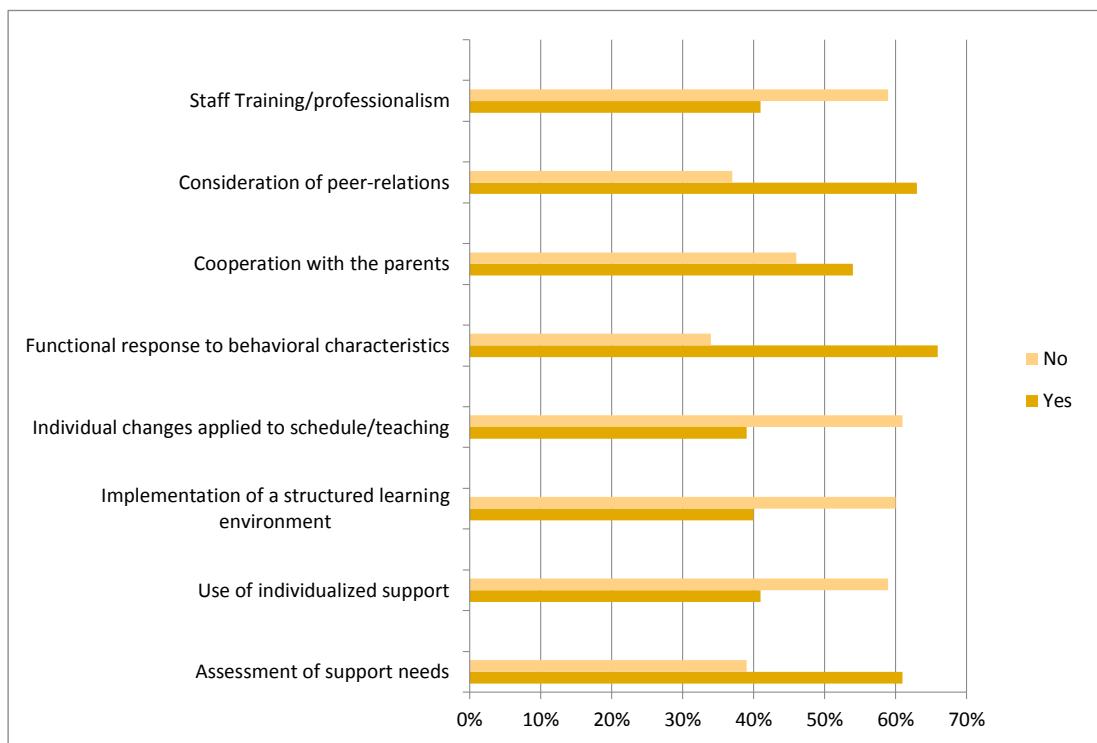


Figure 1: Bar Chart showing the percentage scores in different dimensions of inclusive practices of inclusive schools in Enugu state

Data presented in Figure 1 show the implementation of inclusive practices in the schools as rated by teachers. Based on the figure, 63% of the participants agreed that their school met the

requirement for consideration of peer relations; 54% answered yes for cooperation with parents, 67% answered yes for functional response to behavioural characteristics; and 61% agreed that their

school use individualized support. Further, 40% of the participants agreed to the implementation of a structured learning environment; 38% agreed to the use of individual changes applied to schedule/teaching; 41% to the use of individualized supports, and 41% to staff training/professionalism. This means that even though some inclusive practices are used by schools, there are gaps in the extent of use. The highest used practice is cooperation with the parents, which is implemented by 67% of the teachers. This indicates that inclusive practices for learners with NDDs are not being fully implemented in inclusive schools in Enugu state Nigeria.

Discussion

The inclusion of disabled pupils in school is stated in the Sustainable Development Goals (SDG, 2019) and educational policies (Ajuwon, 2012; Akinbola, 2010; Ngwoke et al., 2020). For the time being, it appears as though frequently structured inclusion activities in schools, other than the placement of children and adolescents in mainstream classes, remain the exception, not the rule. However, the contemporary pragmatic implementation of inclusion in mainstream school practice for learners with NDDs is largely unknown in the

Nigerian setting (Odunsi, 2019). It has been claimed that "genuine" inclusion of kids with NDDs involves more than simply placing them in inclusive schools (Bölte et al., 2021), and this is still far from the reality in the Nigerian setting (Adetoro, 2014; Ngwoke et al., 2020). The dilemma is exacerbated by the growing prevalence of neuro-developmental disorders in schools and the instructors' responsibility to ensure that all students learn optimally. Thus, teachers must employ inclusive tactics while addressing the needs of students with NDDs.

The purpose of this study was to examine inclusive education methods in Enugu State, Nigeria that are consistent with the need to accommodate the requirements of learners with NDDs. By and large, school staff claimed that they lacked the necessary training to teach students with NDDs and that their personal actions or their institutions' implementation of inclusive practices were restricted. Teachers reported having limited ability to adopt inclusive practices for students with NDDs. The most significant shortcomings were noted in the application of individual adjustments to schedules/teaching, the establishment of a structured learning environment, the use of tailored support, and insufficient

staff training/professionalism. In general, there were gaps in other tactics, since up to 70% of teachers did not employ any of them.

Parental cooperation was considerable and outweighed the criterion score. It follows that teachers of children with NDDs need to develop and maintain collaborative relationships geared towards meeting these learners' needs. Several recent studies have demonstrated the important role of parent-teacher collaboration in achieving effective inclusive education (Adams et al., 2018; Agboka, 2018; Schultz et al., 2016; Sucuolu&Bakkalolu, 2018; Syriopoulou-Delli et al., 2016). Further research has shown the importance of collaboration between parents and teachers in the inclusion of students with autism spectrum disorders (Syriopoulou-Delli et al., 2016), attention deficit hyperactivity disorder (ADHD) (Gwernan-Jones et al., 2015), and learning difficulties (Syriopoulou-Delli et al., 2015). Thus, a collaboration between parents and teachers could increase knowledge about each child's unique behavioural patterns, thereby improving behavioural control and achievement (Hornby & Lafaele, 2011).

Additionally, this study identified how teachers respond to behavioural features through functional reactions. The teachers employed negative disciplinary measures (consequence-based strategies) and multiple interventions to shape specific problematic ADHD behaviours, thereby demonstrating a lack of competence in classroom management. The teachers must develop a greater understanding of ADHD and appropriate behaviour management tactics for students with NDDs in order to improve their classroom management abilities and assessment reports for students with ADHD, as well as to foster students' academic success and social development (Odunsi, 2019; Ojionuka, 2016).

Classroom teachers of students with NDDs lack knowledge and skill for classroom management strategies and effective strategies for addressing disruptive behaviours. Earlier studies showed that they face extraordinary difficulty meeting the classroom's pedagogical demands (Cheng & Chen, 2018; Fuandai, 2010) since they must simultaneously mediate academic deficits and implement behavioural interventions (Odunsi, 2019). For teachers to effectively implement inclusive education for students with NDDs, they need

pedagogical skills in two content areas, such as academic interventions and research-based classroom management strategies (Conroy et al., 2014; Florian & Linklater, 2010). This is because classroom behaviour management is a vital component of the success of the inclusive classroom, especially when it comes to meeting the unique behavioural needs of pupils with NDDs. Classroom management refers to all activities taken by teachers to promote order and efficiency in class activities. In addition, teachers should provide differentiated instruction in terms of behavioural management and maintaining a consistent, structured pedagogical environment (Dixon et al., 2014; Onyishi & Sefotho, 2020, 2021).

According to the findings of this study, teachers' knowledge and implementation of an organized learning environment for students with NDDs is low. These findings are in line with Ojionuka (2016), who discovered that teachers are responsible for creating learning environments that cater to the needs of all students, in addition to playing a key role in referring students for screenings. Nigerian general educators either lack an accurate understanding of how to construct structured learning environments for

students with NDDs or have received insufficient training to do so. Additionally, the study discovered a deficient degree of utilization of individual support for learners with NDDs. This circumstance jeopardizes the effectiveness of inclusive education approaches for students with NDDs, as the majority of students in this category require additional and tailored assistance to achieve successful inclusion results. Individualized support has been demonstrated to be effective for inclusive education in a variety of contexts (Engelbrecht, 2006; Yoro et al., 2020). Individual support for learners with NDDs is promising because it is based on the concept of a personalized education plan (IEPs). Individualized and differentiated education modalities are both effective strategies for addressing the learners' peculiarities associated with NDDs, particularly in an inclusive setting (Nadeau et al., 2020; Nowell et al., 2019).

Conclusion

Following the study's outcomes, it is concluded that teachers rarely implement inclusive education practices that target learners with NDDs in Enugu state, Nigeria. This is a systemic deficiency as it may have resulted from the teachers' lack

of training and policy deficit. Given that neurodevelopmental condition imposes stereotypical limitations on the learners, teaching those who are living with such conditions, without observing the responsive effective strategies, may mean doing more harm than good and may lead to the deterioration of the victims' conditions. Thus, inclusive practices and policy implementation hinge on the teachers' competency/training in effective strategies. This is because teachers' poor use of NDDs-responsive inclusive practices means that the majority of the learners with NDDs are excluded in the classrooms.

Limitations of the study

The current study's findings are limited in a few ways. The voices of parents and students may have resulted in a different, probably even less hopeful pattern of results. I propose that future research adopt a mixed-method approach to get a holistic understanding of the viewpoints of instructors, parents, and students with NDDs. The operationalization of inclusive behaviours may have also influenced the findings of this study. One could hypothesize that the instrument items would be better supported by observation and/or discussion of school risk and resilience variables associated with the

inclusion of learners with NDDs within the context of Nigeria's inclusive education programme. The INCLUSIO questionnaire employed in this study was developed and supervised by NDD doctors and does not reflect a genuine educational or teaching perspective (Bölte et al., 2021). Teachers' responses to the questions may have been influenced by a negative attitude, a lack of information, and the stigma associated with NDDs. As a result, the findings of this study may not be generalizable to Africa or the rest of the world. Further research may apply more culturally relevant instruments that educate learners with NDDs through the use of local language or socio-cultural context.

Recommendations

The researcher provides the following recommendations to aid in the implementation of inclusive education, particularly for individuals with neurodevelopmental disabilities. The training of teachers should include evidence-based education for NDDs, both in terms of basic science and practical application. Although Nigeria is participating in Special Needs Education, the policies relating to classroom activities and rehabilitation are inconsistent with worldwide best practices (Adebisi et al.,

2014). In the current situation, we have policies that must be accompanied by law and overseen to ensure that the work of inclusive education instructors is highlighted within the policy's context.

The Government should develop and implement differentiated instruction methodologies, teacher training programmes, and academic curricula that will help teachers improve their pedagogical competence and student achievement. I believe that educational neuroscience should be incorporated into

science instruction and in-service teachers should receive ongoing education in order to enhance attention to students with NNDs in schools. The study confirmed the lack of concern of state governments for special education (Adigun, 2018). There is, therefore, a need for more awareness and funding for inclusive education within all of Nigeria's states. Educators in inclusive schools should receive in-service training on the topic of NDDs and learning. Behavioural rehabilitation framework should also be a part of the school systems.

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