Teachers' Attitudes Towards Learners With Disability Scale (TALDS): Construction and Psychometric Analysis

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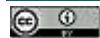Department of Special Education, University of Calabar, Calabar, Nigeria

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Abstract
This study was designed to develop and validate an instrument that can enable researchers and scholars to measure the attitudes of teachers towards learners with disabilities in an inclusive classroom. The study was grounded on the three-components theory of attitude. A series of steps were followed to ascertain the face and content validity of the instrument. Based on the data collected from 532 respondents, preliminary screening was performed, items with weak or high correlation to others were dropped or retained. The construct validity and dimensionality of the instrument was evaluated using Exploratory Factor Analysis (EFA), following the Principal Component Analysis (PCA) extraction, with a varimax rotation based on Eigenvalues greater than one. The results yielded a three-factor solution after suppressing loadings less than .40. These factors were labelled carefully based on the statements of the leading items loading. Cronbach alpha was employed in evaluating the reliability of the instrument, with values ranging from .849 to .938, indicating that the instrument is internally consistent. Consequently, the proposed 36 items instrument was reduced to 30 items. The procedures followed, coupled with the removal of dysfunctional items, resulted in an instrument with appropriate psychometric properties and high reliability for measurement.
Keywords: Psychometric; Teachers; Attitudes; Learners; Disability; Scale.

1. Introduction

Education serves as the central processing unit of every nation since all other sectors depend on it for survival. Education receives inputs, processes them into meaningful products and send them to society with the required human capital (output). Just like the computer central processing unit (CPU), the higher the frequency of the CPU, the faster and better will the entire computer perform. Similarly, the higher the level of educated people available in a nation, the faster the economic development, productivity and sustainability of the country. The importance of education to any nation cannot be overstated, because every individual irrespective of social status, religious belief, ethnic group, race or gender need a sound education to live usefully and contribute meaningfully to national advancement. It was based on this encompassing need of education that spurred almost all the nations of the world to adopt what is known as "inclusive education."

The term "inclusive education was officially conceptualized and introduced in Spain in the year 1994 by the United Nations Education, Scientific and Cultural Organisation (UNESCO) at the "World Conference on Special Needs in Education" (Bansal, 2016). It refers to the provision of equal educational opportunities and rights to all children of school-going age (Haug, 2017). It is also seen as efforts made to unify the services of special educators and regular classroom teachers in the training of all children irrespective of their health status (Bailey, 2004). In an encompassing definition, inclusive education is seen as the placement of children with disabilities in the same regular learning environment (whether in formal schools or non-formal places) with peers of similar age (without health challenges), receiving instruction and guidance from the same teachers, with equal access to educational services, resources, and opportunities (Ainscow, 2005; Bailey, 2004; Sambo and Gambo, 2015) The above definitions suggest that inclusive education offers the opportunity for students with different forms of learning disabilities to learn in the conventional classrooms with the so-called normal students. Inclusion provide equal participative opportunities to all students, but with modified teaching approach, facilities and assistance needed by special learners within the same learning environment (Singh, 2016).

Special learners are characterized with learning disabilities which can be physical, mental, psychological, social or emotional – that prevents them from learning effectively like the so-called normal children. Special learners also include those who may have been excluded based on gender, language, disability, ethnicity and other factors (Sambo and Gambo, 2015; Singh, 2016). In the Nigerian National Policy on education, it is well documented that what

constitute special learners can be grouped into three broad categories – the disabled, disadvantaged and talented (Federal Republic of Nigeria, 2013). Disabled learners comprise those with physical or sensory impairment (e.g. hearing impaired, visual impaired, health or physically challenged, mentally retarded, emotionally destabilized, and those with other forms of handicaps) which hinders them from learning in the normal classroom (Federal Republic of Nigeria, 2013). The disadvantaged include children whose parents' lifestyle or occupation does not give them access to regular forms of education. These include children of migrant fishermen, farmers, nomads, hunters and so on Federal Republic of Nigeria (2013). The gifted and talented category comprises individuals with a very high rate of intelligence quotient (IQ) who find themselves amid other learners (Offor and Akinlosotu, 2017). Their level of reasoning usually puts them in a challenging situation of hatred and seclusion from other learners in conventional schools (Federal Republic of Nigeria, 2013). Special learners require special attention from teachers and peers in an inclusive environment, thus, creating an international drive in this area.

The international drive towards the inclusion of special learners into the mainstream learning environment is on the rise and has gathered several attentions of scholars, educators, researchers and policymakers with expertise in special education and beyond (de Boer *et al.*, 2012; Deutsch and Tyler, 2011; Khan *et al.*, 2017). Although a study disclosed that the inclusion of students into regular classrooms has lasted for over a century in Scotland, making it an old concept (Deutsch and Tyler, 2011), it seems to be relatively new in Africa, particularly in Nigeria. In Britain, the concept of inclusive education is comparatively at its infancy (Almahdi and Bukamal, 2019). Some scholars also admit that inclusive education is a new movement that has created more difficulties exerting pressure on educational stakeholders, especially teachers (Sakarneh and Nair, 2014), stirring up the need for appropriate reforms to be developed for full inclusion (Fern, 2010).

It is quite revealing that the inclusive education policy has raised a lot of arguments, perceptions, feelings and attitudes among scholars (Sakarneh and Nair, 2014), as critics of inclusive education argue that the mere placement of students with special education needs, into regular classrooms with the normal ones, does not promote acceptable/desired learning outcomes (Anastasiou and James, 2011). Furthermore, many school administrators and teachers have indicated their unreadiness to man classrooms involving diverse learners, especially those with learning disabilities (Sharma *et al.*, 2008). The unwillingness, lack of confidence, or unreadiness to teach special learners could be pivotal in affecting the attitudes teachers demonstrate towards inclusion (de Boer *et al.*, 2011). Thus, the attitudes of teachers in inclusive classrooms could go a long way to affect the cognitive, affective, and psychomotor behaviour of special learners. It is, therefore, imperative for the attitudes of teachers to be assessed using a valid and reliable instrument with sound psychometric characteristics.

2. Attitudes of Teachers Towards Disabled Learners

The concept of attitude has been variedly defined as many scholars have attempted to clarify the term and what it constitutes. Attitude can be seen as the perception or response of individuals towards people, event, object or other phenomena happening around them (Offor and Akinlosotu, 2017). Attitude influences people's belief, feelings and behavior (Albarracín *et al.*, 2005). Therefore, attitude may be seen as the positive or negative view, feelings and behaviour people hold or demonstrate towards others or events. The attitudes of pre-service and in-service teachers towards learners with disabilities have gained wide recognition in the foreign literature and have been a subject of research, perhaps because of its impact on the success of implementing inclusive education (Dash *et al.*, 2019; Dias and Cadime, 2016; Dukmak, 2013; Florian, 2012; Hsien *et al.*, 2009; Krischler and Cate, 2019; Leatherman and Niemeyer, 2005; Niemeyer and Proctor, 2002; Saloviita, 2018; Seçer, 2010; Sharma *et al.*, 2015; Unianu, 2012; Vaz *et al.*, 2015; Weiner, 2003). In Nigeria, the attention of some scholars has also been drawn to the discourse of teachers' attitudes towards inclusive education (Fakolade *et al.*, 2009; Offor and Akinlosotu, 2017; Sambo and Gambo, 2015). However, the type of attitudes teachers display towards SNS vary greatly from one teacher to another (Ewing *et al.*, 2017).

Scholars have argued that the prospect of implementing successful inclusive classrooms depend on the attitude of teachers (Dukmak, 2013; Fakolade *et al.*, 2009; Florian, 2012). It has been shown that many researchers in the past three decades have concluded that the attitudes and willingness of teachers affect to a large extent, the degree to which successful inclusion can be achieved (Avramidis and Norwich, 2002; Forlin, 2001). It is further documented that teachers with favourable attitudes towards inclusive education adopt flexible instructional strategies suitable for all learners in inclusive classrooms (Bender *et al.*, 1995) promoting positive mindset and attitudes of other learners towards their disabled colleagues (Norwicki and Sandieson, 2002). There seem to be serious arguments among researchers on the nature of attitudes teachers portray towards learners with disabilities.

Some studies indicate that the attitudes of teachers towards special learners are positive (Al-zyoudi, 2006; Dash *et al.*, 2019; Dimitrios *et al.*, 2018; Dukmak, 2013; Khan *et al.*, 2017; Pappas *et al.*, 2018; Tsakiridou and Polyzopoulou, 2014) while others held that the attitudes of teachers are negative (Florian, 2012; Krischler and Cate, 2019; Lyakurwa and Tungaraza, 2013; Offor and Akinlosotu, 2017). Furthermore, some studies discovered that the attitudes of teachers towards special needs students (SNS) are mixed (Greene, 2017; Ojok and Wormnaes, 2012). Positive attitudes were shown towards inclusive teaching practices, while negative attitudes were manifested towards the philosophical dimensions of inclusive teaching practices (Greene, 2017). Also, a higher number of teachers showed more willingness to teach SNS with intellectual abilities (Ojok and Wormnaes, 2012). Similarly, another study found that a small proportion of teachers (20%) did not maintain favourable attitudes towards SNS, while 80% showed positive attitudes (Saloviita, 2018). On the contrary, it was also reported that many pre-service teachers (80.2%) exhibit negative attitudes, while 19.2% has positive attitudes towards inclusive learners (Lyakurwa and

Tungaraza, 2013). There is need to examine the factors that are responsible for the favourable and unfavourable attitudes teachers display towards special needs students.

A lot of factors have been extolled in the literature which accounts for the differential attitudes of teachers towards SNS. Positive attitudes were found to be influenced by some factors such as the duration of teaching experience, level of education, specialization, the severity and nature of the disability, age, and teachers' training level (Al-zyoudi, 2006; Avramidis and Norwich, 2002; Bansal, 2016; Greene, 2017; Offor and Akinlosotu, 2017; Shade and Stewart, 2001; Unianu, 2012; Vaz *et al.*, 2015; Voltz, 2003). Negative attitudes of teachers, on the other hand, were attributed to teachers' belief, since inclusion hinders the effective teaching of normal students (Florian, 2012). There is also a contention among studies regarding the effect of gender on the attitudes of teachers. Many studies advocate that male teachers are significantly more positive than females (Dash *et al.*, 2019; Dukmak, 2013), yet others showed opposite results in favour of females (Alghazo and Gaad, 2004; Fakolade *et al.*, 2009). However, some studies held that there were no significant gender differences in the attitudes of teachers towards including special learners in regular classrooms (Manju, 2017; Offor and Akinlosotu, 2017). However, factors such as teachers self-efficacy, work orientation were reported to be insignificantly correlated with teachers attitudes towards inclusion (Saloviita, 2018).

It has been disclosed that teachers' attitudes towards the practice of inclusive education are affected by other factors such as the shortage of quality resources, lack of support to teachers, poor confidence of teachers in facilitating inclusive classrooms, and the nature/attitudes of some special learners (Forlin *et al.*, 2008; Gibb *et al.*, 2007; Goodman and Burton, 2010; Monsen *et al.*, 2014). Specifically, some teachers have indicated that many special learners possess poor attention spans, limited communication skills, inability to socialize with others, which makes the implementation of inclusive education a herculean task (Forlin *et al.*, 2008). However, factors that facilitate inclusive education are effective classroom management, good ethos and inclusive cultures, provision of an inclusive team for guidance purposes (Gibb *et al.*, 2007). Whatever the factors, it seems obvious that the quality of attitude extended by teachers to SNS tends to affect their wellbeing in the classroom. Available evidence suggests that teachers' poor attitudes towards inclusive education promoted less satisfaction and cohesiveness among pupils, but increased difficulty and competitiveness in students (Monsen *et al.*, 2014). A study found that significantly higher levels of satisfaction of students are associated with teachers' positive mainstreaming attitudes (Monsen *et al.*, 2015).

The exploration of the literature shows that inclusive education as a concept is relatively old and new in different countries, although it was formally brought to the forefront in 1994 by UNESCO. An abundance of findings exists regarding the direction of teachers' attitudes towards inclusive education. Many studies held that teachers' attitudes were positive, while others showed otherwise. Arguments also abound among scholars on the factors that affect teachers' attitude towards SNS, as well as, the extent to which such factors affect the attitude of teachers. The contentious position held across various quotas, as presented above, indicates that further research is still plausible on teachers' attitudes towards inclusive education; especially in areas such as gender, educational qualification, level of training, the extent of attitudes, experience and so on. The present study was undertaken to develop and validate an instrument that can enable prospective scholars to gather quality information on the attitudes of teachers towards inclusive education.

3. Theoretical Framework and Previous Measuring Scales

This study is rooted in the Three-Component Theory (Eagly and Chaiken, 1993; Triandis, 1971), which explains that attitudes are characterised by three core components - direction, intensity and target (Bailey, 2004). Attitude is said to have "a cognitive element, an effective component and a behavioural intent" (Bailey, 2004). Thus, there is a trichotomy (cognitive, affective, and behavioural) that must be examined or considered in the development of attitude instruments (Feather, 1985;1988; Gable and Wolf, 1993; Schwartz, 1992). The cognitive aspect is a reflection of a person's knowledge and beliefs about other individuals, the affective aspect is based on a person's feeling towards others and the third component reflects a person behaviour extended to others (de Boer *et al.*, 2012). Most studies on attitude have presented arguments in support of the three-component model (de Boer *et al.*, 2012; Krischler and Cate, 2019; Triandis, 1971). However, others have worked with two components (Ajzen, 2005), as well as a single component model (Dillon and Kumar, 1985).

Studies adopting the three components theories assume that the cognitive, affective and behavioural aspects of attitude are separate constructs that should be studied separately (Avramidis *et al.*, 2000; Eagly and Chaiken, 1993; Ostrom, 1969). Many studies adopting the two-component model focused only on the affective and cognitive dimensions while excluding the behavioural component (Bagozzi and Burnkrant, 1979;1985; Fishbein and Ajzen, 1974). Studies on the single-dimension present a case suggesting that a clear difference worthy of separation cannot be established between the three dimensions (Berryman and Neal, 1980; Dillon and Kumar, 1985; Sideridis and Chandler, 1995). A plethora of measuring instruments have been based on a single dimension of attitude, especially the belief (cognitive) component (Berryman *et al.*, 1980; Larrivee and Cook, 1979; Moberg *et al.*, 1997; Reynolds and Greco, 1980; Semmel *et al.*, 1991; Sideridis and Chandler, 1995; Villa *et al.*, 1996; Wilczenski, 1992). Some scholars contended that the three components cannot be treated as separate parts, as they jointly interact with attitude. Furthermore, they argued that attitude influences people's belief, feelings and behaviour (Albarracín *et al.*, 2005).

Different instruments have been developed over time by researchers in an attempt to measure the construct – attitude. A number of these instruments yielded results in support of the three-component model by providing partial (respective) validity to the cognitive, affective and behavioural component of attitude (Antonak, 1982; Breckler,

1984; de Boer *et al.*, 2012; Forlin *et al.*, 2011; Mahat, 2008; Rosenbaum *et al.*, 1986; Siller *et al.*, 1967). However, the results of some studies favoured the two-component model (Bagozzi and Burnkrant, 1985; Hastings and Oakford, 2003; Monsen *et al.*, 2015; Sharma and Desai, 2003). Yet others supported the single component model (Ajzen, 2005; Cochran, 1998; Findler *et al.*, 2007; Fishbein and Ajzen, 1974; Gething and Wheeler, 1992; Grand *et al.*, 1982; Wilczenski, 1992; Yuker *et al.*, 1966). Despite the positions held by the results of past instruments above, the results of other studies have yielded factors that are different from those widely known in the literature (Bailey, 2004; Makas *et al.*, 1988). There is an underlying evidence that allows for the separation of the three components in certain situations (Eagly and Chaiken, 1993). Implying that there is no universal agreement on the number of components an attitude scale should possess (de Boer *et al.*, 2012). However, the choice of researchers on the desired attitude component model to use must be backed by a strong theoretical and well-considered conceptual grounds (de Boer *et al.*, 2012). Thus, following the three-component theory, this study's focus is on the three dimensions of attitudes.

A critique of many previously developed instruments revealed that many of the attitudes lacked conceptual or theoretical blueprints which affect the interpretation and usability of such scales (de Boer *et al.*, 2010; de Boer *et al.*, 2011). For instance, the instruments – Issues in Disability Scale (IDS) and People's Attitudes Towards Inclusive Education (PATIE) developed and validated by Makas *et al.* (1988) and Bailey (2004) respectively, were not grounded in theory. It is also clear that some instruments were designed and used for specific research purposes particularly in higher education (Daane *et al.*, 2000) others have been widely adopted for use (Mahat, 2008; Rosenbaum *et al.*, 1986; Yuker *et al.*, 1966). The broad gap in the adaptability and usage of various instruments previously developed may be attributed to the poor psychometric properties or faulty approaches used in validating such underused tools. For instance, it has been documented that many previously developed instruments measuring attitudes towards inclusive education possess some psychometric features that other scholars find insufficient to warrant or justify further utilization (Berryman *et al.*, 1980; Larrivee and Cook, 1979; Reynolds and Greco, 1980; Wilczenski, 1992). This gives room for the modification of some instruments earlier in existence, or the development of newer ones with acceptable psychometric properties.

Furthermore, it has been discovered that many psychometric properties of some previously published attitudes instruments are not fully reported or the instruments possess properties that are not clear to ascertain their suitability and usability (Mahat, 2008). In two instances cited in Mahat (2008), the reliability and dependability of two instruments were put to doubt. In the first instance, the study of Reynolds and Greco (1980) did not provide a report on the items' characteristics of their scale – Educational Attitude Survey (Mahat, 2008). In the second instance, the study of Berryman and Neal (1980) presented psychometric properties to their scale – Attitudes toward Mainstreaming, that are not clear (Mahat, 2008) consequently, different factorial structures were found on different occasions (Berryman and Neal, 1980; Berryman *et al.*, 1980; Green and Harvey, 1983). Other problems associated with some previous instruments is that they were designed specifically for a particular group of respondents such as pre-service teachers (Forlin *et al.*, 2011) and principals (Bailey, 2004). Such instruments are not encompassing, are limited and cannot be used flexibly in varied context. Thus, they would require modification in some cases before they can be used. The TALDS scale was designed based on these weaknesses, vagueness and errors observed in some of the previously developed instruments. Also, to the researchers' knowledge, none of the previously developed or modified instruments (see Table 1) has been applied to the Nigerian population. This study further addresses this gap.

4. Methods
4.1. Item Development and Conceptual Framework of the TALDS
The development of an instrument measuring attitude as a psychological construct requires a series of steps for it to be valid and reliable. The steps should follow "the review of other scales; exhaustive examination of the literature; development of an extensive item pool; consultation with specialist in the area of inclusive education for advice and to establish face validity; grounding of the study through a small qualitative study" (Bailey, 2004). Following these guidelines, the qualitative grounding of this study was conducted using six special education teachers in Calabar Education Zone, who were interviewed to share their views and experiences about the inclusion of special learners into regular classrooms. Their opinions, as well as, the review of literature, helped in raising items for the instrument. A thorough literature search on previous scales was done using the google search engine and in other databases such as ERIC, ProQuest, PsychNet, Academic Search Elite TandFonline publications, Elsevier database, EBSCO, PsycINFO, PsycARTICLES.

Different but related keywords were used to get related articles such "teacher", "attitudes", "teacher attitudes", "in-service teachers", "pre-service teachers", "inclusive education instruments", "learners with disabilities", "integrated education", and "inclusion". A total of 206 related studies/documents were found. The researchers assessed all the materials, paying attention to only studies focusing on pre-service, in-service or teachers' attitudes towards inclusion or inclusive education. Doing this, a total of 158 studies were eliminated leaving only 48 studies. The abstract of these 48 studies was explored to gain deeper insights into the instruments developed, used, validated, or all of the three. Nineteen instruments were discovered which were of interest to the researchers, based on the condition or evidence that at least one other study had used them (see Table 1). These instruments were all studied to determine their dimension, measures, scales, and psychometric properties (only reliability was reported in Table 1).

4.2. Dimensionality of the Scale

The dimensionality of the construct was based on the three-component theory (explained earlier). The three dimensions of attitudes were considered appropriate in designing the TALDS since the three-component theorists advocate that attitude is not wholistic to be treated uni-dimensionally (Avramidis *et al.*, 2000; Eagly and Chaiken, 1993; Ostrom, 1969). Therefore, any instrument measuring attitude should focus specifically on each of the dimensions for analytical purposes. Having determined the dimensions of the scale, it was pertinent to raise a pool of items. Through the qualitative information gathered from the teachers, literature and previous instruments reviews, an initial pool of 62 items was assembled. The wide array of items was to ensure adequate content validity by covering several vital themes critical in the implementation of inclusive education. Due to the need for items to brief to allow for enclosure into a questionnaire there was a need for the initial pool of items to be trimmed. However, it is warned that such a reduction should not compromise the content validity. The initial 62 items were trimmed to 42 initially chosen set of items covering the three dimensions of attitude.

4.3. Choice of Scale Format/Scoring

It was a tough decision choosing the item format of the scale since based on the strong argument regarding whether scales should have even or odd options format. Some scholars believe that a scale should have even points format to avoid issues during the analysis of data. It is also argued that odd scales are non-informative as the neutral point has no meaning during analysis (Antonak and Larrivee, 1995). Also, it believed that neutral points may end up as last resort for respondents where they do not understand items, or to avoid agreeing/disagreeing to certain items at the same time (Mahat, 2008). However, some scholars favour the use of a 5 – or a 7–point scale (Bailey, 2004; Gable and Wolf, 1993; Weijters *et al.*, 2010). This framework prescribes the inclusion of a middle point to scales to indicate neutrality. Many studies found that odd options format increases the validity and reliability of scales (Lietz, 2010; Weijters *et al.*, 2010). It has also been argued that the use of even scales forces individuals who otherwise would not have agreed nor disagreed to agree or disagree to items, mixing forced and serious responses for varying reasons (Kielblock, 2018).

Table-1. Distribution showing an overview of previously developed instruments

Author/Instrument Title	Description	Reliability	Attitude component
Yuker *et al.* (1966) Attitude Towards Disabled Persons Scale (ATDP)	The ADTP is a 6-point Likert scale with 20 items ranging from –3 = Disagree very much; to +3 =Agree very much	.66 to .89	C
Siller *et al.* (1967) Disability Factor Scale-General (DFS-G)	This is a multi-dimensional scale composed of 7 sub-scales and a total of 60 6-point Likert scale items, ranging from 1 = Strongly Agree to 6 =Strongly Disagree. It measures the general attitudes towards people with different physical disabilities and chronic illnesses.	.73 to .87	B
Tringo (1970) Disability Social Distance Scale (DSDS)	This is a uni-dimensional Bogardus-like social proximity scale with 9 levels ranging from "1 = would marry to 9 = would put to death". It is used to measure attitudes towards individuals with specific disabilities. There are 21 disabilities in which raters are to indicate their hierarchical preference based on attitude composition	.95 to .98	C
Antonak (1982) Scale of Attitudes towards Disabled Persons (SADP)	The SADP consist of 24 items measuring the ability and right of people with all forms of disability in three domains, randomly arranged on a six-point Likert Scale	.88 to .91	C, A, B
Grand *et al.* (1982) Disability Social Relationship Scale (DSRS)	It is characterised by true or false items measuring social situation factors influencing attitudes towards people with CP, Epilepsy, Arm amputation, and Blindness	.86 to .95	B
Yuker and Hurley (1987) Contact with Disabled Persons Scale (CDP)	This a 20-item questionnaire used to determine whether prior contact of respondents in general, would influence their attitudes towards those with disabilities.		B
Makas *et al.* (1988) Issues in Disability Scale (IDS)	Contains 55 items ranging from 1 = Strongly Agree to 7 = Strongly Disagree, with 6 sub-scales (Education, Legal, Intimate social, Non-intimate social, Physiological abilities and Non-Psychological Characteristics) measuring attitudes towards people with various physical disabilities and people with disabilities in general.	.86	
Gething and Wheeler (1992) Interaction with Disabled Persons Scale (IDP)	Measures the attitudes towards disabilities in general with 20 6-point Likert scale items ranging from Agree very much to Disagree very much	.54 to .86	C

Wilczenski (1992) Attitudes toward Inclusive Education Scale (ATIES)	This is a multi-dimensional scale assessing pre-school teachers' attitudes towards four aspects of inclusion (physical, behavioural, social and academic). It contains 16 items placed on a 6-point Likert scale ranging from 1 "strongly disagree" to 6 "strongly agree"	.85 to .92	B
Antonak and Larrivee (1995) Opinions Relative to Integration of Students with Disabilities scale (ORI)	The ORI contains 25 7-points Likert scale items ranging from -3 (disagree very much) to +3 (Agree very much). It measures teachers' attitudes towards the integration of learners with disabilities in a regular classroom.	.88	C
Cochran (1998) The Survey of Teacher Attitudes towards Inclusive Classrooms (STATIC)	Comprised 20 5-points Likert scale items ranging from "Strongly Disagree" to "Strongly Agree," with five reverse coded items. It was designed to measure the attitude of teachers towards special need learners. Teachers attitude is determined by summing the results of the 20 items with higher scores reflecting positive attitudes and lower scores indicating negative attitudes.	.89	C
Sharma and Desai (2003) Concerns about Integrated Education	This was designed with 21 items on a 4-points Likert-type scale ranging from 4 (Extremely Concerned), (2) to 1 (Not Concerned at all). It measures principals' and teachers' concern for the integration of students with disabilities into regular school programmes. It comprises four factors - concern about resources, acceptance, academic standards and workloads.	.74 to .84	A, C
Hastings and Oakford (2003) Impact of Inclusion Questionnaire (IIQ)	The IIQ was developed with 24 7-points Likert scale items ranging from "very strongly agree" to "very strongly disagree", with scores ranging between 23 and 161. It comprises four subscales of 6 items each and is used to compare the impact of different groups of special learners.	.65 to .81	A, C
Bailey (2004) People's Attitudes Towards Inclusive Education (PATIE)	Comprised 24-items measuring the attitudes of school principals towards the inclusion of special learners in regular schools. Items are arranged on a 5-point Likert scale ranging from Strongly Disagree to Strongly Agree.	.91	
Findler et al. (2007) The Multi-dimensionality Attitudes Scale towards persons with disabilities (MAS)	This has three sub-scales (Affect, Cognitions and behaviour), with a total of 34 items on a five-point scale ranging from 1 = Not at all; to 5 = Very much. Affect has 16 items; Cognitions has 10 items and behaviour has 8 items.	.83 to .90	C, A, B
Mahat (2008) The Multidimensional Attitudes Toward Inclusive Education Scale (MATIES);	The MATIES is an 18-item scale scored on six points Likert scale ranging from strongly disagree, disagree, somewhat disagree, somewhat agree, agree, and strongly agree. Comprised of three dimensions: cognitive, affective, and behavioural domains; each measured by six indicators or items.	.77 to .91	A, C, B
Forlin et al. (2011) Sentiments, Attitudes, and Concerns about Inclusive Education–Revised (SACIE-R)	The SACIE-R possess 60 negatively worded items used in measuring the perception of pre-service teachers towards inclusion.	.65 to .83	A, C, B
de Boer et al. (2012) Teacher Questionnaire	This comprises of 30 5 points Likert Scale items ranging from "1 = completely disagree to 5 = completely agree." It was structured into three sub-scales – Cognitive, Affective, and Behavioural; with 12, 12 and 6 items respectively.	Not reported	A, C, B
Monsen et al. (2015) Teachers' Attitude towards Inclusion Scale (TAIS)	This is a multi-dimensional scale structured into four sections. Section 1 elicits respondent demographic data. While items in section 2 to 4 were arranged on an 8-Likert scale respectively. The four sub-scales were named - the willingness to include, adequacy of support and attitudes towards inclusion.	.76 to .86	C, B

The researchers adopted the 6-point Likert type scale for the instrument (TALDS) since the instrument purports to measure attitudes towards learners with disabilities as the construct. The critics labelled against even option format of scales are very true, yet the inclusion of a neutral point does not provide a solution to the critique, in addition to other weaknesses characterized by odd scales. An even scale was also considered because there are situations in which individuals cannot claim not to have an opinion and prefer sitting on the fence. The construct

(attitudes towards learners with disabilities) is one of such situations, as all teachers should either be positive or negative towards learners with disabilities, but not undecided. In the case of forcing participants to agree or disagree against their weakness (which is the core critique to even scales), uninterested participants should rather not participate in the survey; than do so and be willing to respond to some items and being indecisive in others. Specifically, six-points Likert-type scale was chosen over four-points to offer more response options for respondent. It was based on these reasons that the researchers chose the 6-points scale notwithstanding the critics, as doing otherwise also has its weaknesses.

The six-point scale adopted for this study has options ranging from 1 = Very Strongly Disagree to 6 = Very Strongly Agree for positive items, while negative items are reverse coded. More specifically, the response and scoring of the instrument is as follows for positively worded items: Very Strongly Disagree = 1; Strongly Disagree = 2; Disagree = 3; Agree = 4; Strongly Agree = 5; Very Strongly Agree = 6. Reverse scoring is done for negatively worded items as follows: Very Strongly Disagree = 6; Strongly Disagree = 5; Disagree = 4; Agree = 3; Strongly Agree = 2; Very Strongly Agree 1. The levels of teachers' attitude towards learners with disabilities measured using the TALDS ranged from 10 (Very poor/unfavourable) to 60 (Very good/favourable) in each component (sub-scale).

4.4. Content Validity of the Scale

A team of five experts in special education department, University of Calabar were consulted to assist in determining whether there was a strict representation of major inclusive education themes in the items pool. Furthermore, a team of four psychometric experts in measurement and evaluation unit, department of Educational Foundations, University of Calabar were also consulted to scrutinise the wordings, as well as other characteristics of the items. The feedback collated from these experts led to the elimination of 6 items from the 42 initially chosen items for brevity purposes. Also, 7 items were rephrased due to vagueness, double-barreled nature and ambiguity (as recommended by the experts), resulting in a total of 36 retained items for the final version of the instruments. In ensuring a balance in the response set, 18 items were negatively worded, while 18 were positively worded. The use of a balanced response set was to ensure objectivity and reduce proximity effect (Bailey, 2004). That is, avoiding the effect of people responding similarly to adjacent items. A trial test (preliminary study) was conducted using 25 teachers drawn at random from two public schools in Calabar South Local Government Area, who were not part of the pilot study. The respondents were asked to indicate items that are not clear; items that are too difficult or easy; to provide general comments on the structure of the instrument in terms of response options.

4.5. Pilot Study

A proportionate stratified random sampling procedure was adopted in selecting a target sample of 650 secondary school teachers in Cross River State, Nigeria. Stratification was based on education zones in the State, with the sample representing 15% of the total population of teachers in the State. However, only a total of 536 (82.5% of the initial sample) teachers turned up and participated in the survey. Copies of the questionnaires were distributed to the 536 teachers and retrieved successfully upon completion. However, four completed copies of the instrument were further discarded for multiple ticking of options to the same items or incomplete filling of some sections. They were eliminated to avoid issues of missing data and to obtain a complete set of response for analytical purposes. Thus, complete data were obtained from a sample of 532 secondary school teachers (81.8%) of the target sample.

5. Results

5.1. Demographic Characteristics of Respondents

The respondents of this study comprised of 214 males (40.2%) and 318 females (59.8%). The analysis of respondents' age indicated that 4.9% (n = 26) are less than 20 years old; 39.1% (n = 208) are between 20 to 29 years old; while 56% (n = 298) are either 30 years or older. In terms of respondents' academic qualification, it was revealed that 15 participants (2.8%) are holders of OND/NCE; 356 respondents (66.9%) are holders of HND/First degree; 130 participants (24.4%) held Master's degree; while 5.8% of the respondents (n = 31) are doctorate degree holders. Furthermore, 32% of the respondents (n = 170) have less than 5 years' work experience; 36.7% of the respondents (n = 195) have between 5 to 9 years work experience; while 167 respondents (31.4%) have 10 or more years of work experience.

5.2. Exploratory Factor Analysis (EFA)

Before performing the EFA, the coded data were explored to check for outliers using Box-plots, while Pearson correlation was used to check for the item inter-correlation (as recommended by Field, 2005). The inter-item correlation revealed six items (3, 8, 13, 18, 22 and 36) that did not correlate with any other item in the scale, hence they were eliminated before the factor analysis was performed (Field, 2005), to avoid raising non-clustered loadings. This reduced the number of items from 36 to 30 items for the Principal Component Analysis (PCA). The PCA was performed as the extraction technique to check for the factorial structure and dimensionality of the instrument based on Eigenvalues greater than 1, following the varimax (orthogonal) rotation. Iteration was also performed suppressing items with factor loadings less than .40. The data of this study met the requirements for factorizability as revealed through the KMO value of .936 and Bartlett's test of sphericity yielding a significant value of 8836.328 at 435 degrees of freedom. This result indicates that the correlation patterns in the data are quite compact, making factor analysis possible to reveal distinct factors. Furthermore, it implies that the correlation matrix is not an identity matrix. The result yielded a three-factor solution with a cumulative variance of 57.33% (Factor 1, 2 and 3 accounted

for 21.845%, 21.102% and 14.785% respectively, to the total variance). Although three dominant factors were extracted (based on factor loadings greater than .40), the scree plot, however, shows the existence of other possible factors in the data which have been suppressed due to their weak loadings (less than .40). After a careful examination of the various factors and the items loading to term, factor 1 was named affective attitudes (A); factor two was named cognitive attitudes (C); factor three was named behavioural attitudes (B). The summary of the factor analysis result is presented in Table 2.

5.3. Reliability

The reliability of the instrument (internal consistency) was ascertained using the Cronbach Alpha approach. The results (presented in Table 3) suggests that the instrument is internally consistent for measurement purposes. This is because all the alpha values for the three sub-scales (affective [α= .938], cognitive [α = .938] and behavioural [α = .860]) and the overall instrument (α = .849) are higher than the minimum acceptable benchmark of .70 respectively.

Table-2. Rotated component matrix of the Principal Component Analysis based on the Varimax rotation

Label	Item description	Factors		
		A	C	B
It17	I wish I could change the health or physical conditions of learners with disabilities	.832		
It12	I get upset when disabled students are unable to keep up with the regular curriculum	.809		
It19	I get frustrated adapting the curriculum to meet the individual needs of students	.808		
It16	I feel irritated seeing impaired learners struggling to get along with lessons	.807		
It11	It hurts me when other students bully students with disabilities in the classroom	.803		
It34	I am always excited each time special learners attempt to answer questions in class	.801		
It32	I am comfortable seeing special students in the same classroom with other students	.800		
It14	It is none of my business if I am unable to understand students with disabilities	.797		
It20	It is very exciting that students with disabilities are included in regular classrooms	.788		
It15	It bothers me when special learners struggle to cope with the use of learning resources	.768		
It6	It is better for students with disabilities to be taught in special schools		.839	
It10	Learners with disabilities cannot adapt to a competitive learning environment with normal students		.830	
It7	Students with disabilities have more difficulty than others in reaching personal achievements		.826	
It4	Students with disabilities are less intelligent than normal children		.822	
It9	Special and normal learners should be integrated into the same classroom if the curriculum is individualized		.816	
It1	The academic progress of all students in an inclusive classroom is plausible		.812	
It2	Students with disabilities would experience rejection from other classmates in an inclusive classroom		.810	
It35	The inclusion of special learners could hinder the progress of other classmates		.751	
It5	Segregating special learners from a regular classroom would reduce the cost of modifying the physical environment of the school for inclusion		.751	
It31	Inclusion facilitates socially appropriate behaviour amongst all students		.746	
It23	With the necessary support, I would include students with severe disabilities to my classroom			.686
It26	I am not willing to adopt individual assessment practice necessary inclusive education to thrive			.681
It30	I am not excited about teaching in an inclusive classroom combining regular and special students			.678
It24	I would never modify the physical environment to accommodate special learners in a traditional classroom			.665

It27	I don't mind using teaching methods and instructional aids peculiar to special learners			.662
It25	I don't mind adjusting my communication techniques to carry both special learners and other students along in a lesson			.661
It21	I am willing to encourage special learners to participate in inclusive classroom social activities			.660
It28	I would not assist students with disabilities when they need extra support			.657
It29	I will respond to questions of both special and normal learners without disabilities politely			.653
It33	I will not adopt the curriculum to meet the individual needs of all students regardless of their health status			.648
	Initial Eigen Values	6.65	6.33	4.43
	% of variance explained	21.84	21.10	14.75
Loadings less than .40 are suppressed				

Table-3. Reliability estimates of the three components of the instrument (TALDS)

Factor/Component	K	$\bar{\text{X}}$	SD	α
Affective	10	35.22	13.322	.938
Cognitive	10	34.39	13.738	.938
Behavioural	10	35.00	11.179	.860
Instrument total	30	104.61	21.841	.849
Note: k = number of items per component; $\bar{\text{X}}$ = Mean; α = Cronbach alpha				

6. Summary and Conclusion

The subject and importance of inclusive education have attracted the attention of many researchers worldwide. The review of the literature showed that secondary school teachers exhibit different attitudes towards learners with disabilities, which are either negative or positive. Such attitudes tend to affect the prospect of attaining inclusiveness in educational systems. Thus, it became necessary that teachers' attitude towards special learners be assessed to identify those with favourable or unfavourable attitudes and the extent of such attitudes. This can aid in making policy decisions such as the teachers to retain and those to exclude from inclusive environments for optimal performance. Over time, different measuring instruments have been developed to enable researchers in special education and/or related disciplines to evaluate teachers' attitudes towards inclusive education. However, some of these instruments have been criticized for either lacking theoretical basis or using faulty or questionable approaches in the validation of measuring instruments.

Based on information from previous instruments, literature review and several experts, the TALDS was developed to bridge some of the gaps found in previous instruments. The instrument (TALDS) was developed following best practices outlined in the literature. The psychometric properties (validity and reliability) of the TALDS has been proven to be a good fit for measurement purposes. Thus, the TALDS is hereby recommended for future use in large scale researches involving teachers' attitudes towards learners with disability. The major limitation to this study is that the instrument was developed and validated based on the Nigerian population. Implying that further validation, especially in other cultural contexts are plausible. Therefore, we recommend for verification of the validity and reliability of this instrument be carried for increased dependability.

Declaration

The authors declare that this is original research study carried out in Cross River State, Nigeria.

Availability of Data

The authors declare that the data of this study were obtained from primary sources through a survey (administration of questionnaires). The data used or analysed during the current study are available from the corresponding author on reasonable request.

Competing Interests

The authors declare that they have no competing interest for this study.

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