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Research Article:

Development of the Scale to Measure Indonesian Teachers' Attitudes Towards Students with Special Needs in an Inclusive Education Setting

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ABSTRACT

The current study aims to develop the new scale to measure attitudes toward students with special needs in inclusive education for Indonesian teachers. Until now, there is no instrument to measure teachers' attitudes toward inclusive education developed in Indonesia. It was validated by experts, two times by pilot studies, and three times by revisions. In addition, it incorporated five new items specific to Indonesia, developed by analysing government regulations and teacher interviews. A total of 499 teachers were involved in the first pilot study process and 1,209 teachers in the second stage. The teachers were from three provinces in Indonesia, namely Yogyakarta, East Java and West Java. After the data was collected, testing with Principal Component Analysis was carried out. In addition, Cronbach's alpha correlation and Pearson product-moment correlation test were used to test the construct validity and the correlation of each component. Finally, 22 items were selected as products that can be used to measure teacher attitudes. The result of this research was that the scale was valid and reliable; the Principal Component Analysis value by varimax with Kaiser normalisation was 0.541 to 0.800, and the Cronbach's alpha value was 0.821 (α = 0.821). In the second trial phase, the results of the correlation analysis show that each component is significant. The level of significance of each component is, on average, 1%. Therefore, in the future, the scale called the Indonesian Teachers Attitudes toward Inclusive Education (ITAIE) Scale would be worthwhile to measure teachers' attitudes toward students with special needs in an inclusive education setting more broadly and to cover a broader area in Indonesia.

Keywords: Inclusive education, teacher attitudes, special needs, students, attitudes measurement

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INTRODUCTION

The growth of inclusive education has significantly influenced Indonesia's educational system. Since 2002, Indonesia has worked to establish an inclusive education model (Firdaus, 2010). In West Sumatra, three inclusive schools were initially created as part of a pilot programme, allowing students with special educational needs (SEN) to enroll in mainstream schools. This step marks the Indonesian government's increasing commitment to inclusive education (Ediyanto et al., 2017). Additionally, the Salamanca Statement and Framework for Action on Special Needs Education (UNESCO, 1994) emphasises that all children have a fundamental right to education, and their unique traits, interests, abilities and learning needs should be acknowledged. Further reinforcing this commitment, Indonesia signed the Bandung Declaration at the 2004 National Workshop on Inclusive Education, promoting inclusive educational initiatives. However, Ediyanto et al. (2017) note that many teachers lack familiarity with effective teaching strategies for SEN students.

To effectively implement inclusive education that addresses all students' needs, teachers must adjust their teaching methods and adapt classroom environments (Fidan et al., 2014). Additionally, they need the right skills and knowledge to carry out inclusive practices successfully (Avramidis & Norwich, 2002). Understanding teachers' attitudes toward inclusive education can help develop support systems for effective inclusive teaching (Forlin et al., 2007; De Boer et al., 2011). In psychology, attitude refers to a person's feelings or disposition toward a particular fact or issue. Fishbein and Ajzen (1980) proposed a model suggesting that an individual's attitude toward an issue is shaped by their beliefs about the issue and their underlying evaluative responses. Research indicates that positive attitudes increase teachers' willingness to support students with special educational needs (SEN) (De Boer et al., 2011; Subban & Sharma, 2005; Ediyanto et al., 2021), while negative attitudes may result in inadequate services, hindering inclusive education's effectiveness (Berry, 2010; Gibb et al., 2007). Studies in Indonesia show that teachers with experience teaching SEN students and those frequently working with such students tend to support inclusion more strongly (Kurniawati et al., 2012; Ediyanto & Kawai, 2023), suggesting that teachers' attitudes impact their inclusive teaching practices. Policymakers can leverage attitude assessments to develop intervention programmes that positively influence teachers' perceptions of SEN students and evaluate the quality of training programmes in fields like counseling, rehabilitation, and special education (Towner, 1984).

Several instruments have been developed globally to measure teachers' attitudes toward inclusive education. Seven frequently used tools include the Sentiments, Attitudes, and Concerns about Inclusive Education Revised Scale (SACIE-R) by Forlin et al. (2011), which identifies changes in pre-service teachers' attitudes toward inclusion, openness to students with disabilities and concerns about implementing inclusive practices. Next, the Attitudes toward Teaching All Students (ATTAS-mm) by Gregory and Noto (2012) categorises teachers' attitudes into three components: Cognitive, affective and behavioural, offering a comprehensive understanding. The Teacher Attitudes toward Inclusion Scale

(TATIS) by Cullen et al. (2010) assesses teachers' perceptions of students with mild to moderate disabilities, beliefs in the effectiveness of inclusion, and views on professional roles in supporting inclusive education. Additionally, the My Thinking about Inclusion (MTAI) Scale by Stoiber et al. (1998) examines beliefs about inclusion, covering perspectives, expected outcomes and classroom practices, designed for both parents and educators. The Teachers' Attitudes toward Inclusion Scale (TAIS) by Monsen et al. (2015) measures issues related to inclusion in mainstream classrooms, the social benefits of inclusion for students with special needs, and challenges in working with children with special needs. The Multidimensional Attitudes toward Inclusive Education Scale (MATIES) by Mahat (2008) divides attitudes into three dimensions—affective, cognitive, and behavioural—providing a well-rounded assessment. Finally, the Concerns about Integrated Education (CIE) Scale by Sharma and Desai (2002) was developed to evaluate educators' concerns regarding integrated education in India, known as a simple, reliable and valid instrument. These instruments offer valuable insights into teachers' attitudes, helping to identify areas where support and training are needed for effective inclusive education practices.

However, no instrument has yet been developed to measure teachers' attitudes toward inclusive education in the Indonesian context. Consequently, enhancing teachers' professionalism in understanding the concepts and principles of inclusive education has garnered interest among educational leaders (Angelides, 2008). The drive to improve and develop teachers' professionalism stems from the need to reshape their perceptions and attitudes to support inclusive education better. Research on instruments that assess teachers' attitudes toward inclusion highlights the importance of promoting positive attitudes. A valid and reliable instrument is specifically needed to measure changes in these attitudes, ideally one that is concise, easy to administer, adaptable and both valid and reliable (Mahat, 2008). Then the instrument developed to measure teachers' attitudes toward Inclusive Education must meet the following criteria (Antonak & Livneh, 2000; Cullen et al., 2010): sufficiently broad to encompass the affective, cognitive and behavioural dimensions, developed in the same context and country since attitudes on any subject tend to vary significantly by culture with technically adequate concerning validity and reliability, developed in the last 10 years to reflect the significant shifts in education that have occurred during this time frame. Table 1 summarises the results of reviewing the instruments concerning the criteria listed above.

Table 1. Comparison of instruments for assessing teachers' attitudes toward inclusive education

Instrument by	Name	In Indonesia	In the last 10 years	Cover affective, cognitive and behaviourial dimensions	Technically adequate?
Forlin et al. (2011)	SACIE-R	No	Yes	Yes	No
Gregory and Noto (2012)	ATTAS-mm	No	Yes	Yes	Yes
Cullen et al. (2010)	TATIS	No	Yes	Yes	Yes
Stobier et al. (1998)	MTAI	No	No	No	No
Monsen et al. (2015)	TAIS	No	Yes	No	No
Mahat (2008)	MATIES	No	Yes	Yes	No
Sharma and Desai (2002)	CIES	No	No	No	No

Therefore, given the reasons outlined above, it is essential to develop an instrument to measure Indonesian teachers' attitudes toward inclusive education, as no such tool currently exists within the Indonesian context to enhance teachers' professionalism regarding the concepts and principles of inclusive education. The development of this instrument in the present study is guided by the following research objectives:

1. Defining the process for creating the measurement instrument.
2. Evaluating content validity.
3. Assessing construct validity.
4. Examining criterion-referenced validity.
5. Testing the reliability of the scale.

The current study aims to provide a valid and reliable scale to measure Indonesian teachers' attitudes toward students with special needs in inclusive education setting.

METHOD

The creation of an instrument to assess Indonesian teachers' attitudes toward inclusive education follows the Research and Development Method by Borg and Gall (1989). The review of the scale proceeded through a five-step process.

Information Gathering and Planning

In the first step—information gathering and planning—the study referred to prior research by Antonak and Livneh (2000) and Cullen et al. (2010). Antonak and Livneh (2000) offered extensive insights into measuring teachers' attitudes toward students with SEN, while Cullen et al. (2010) discussed the development of effective instruments. As a result, seven suitable instruments were identified for the current study: the "Sentiments, Attitudes, and Concerns about Inclusive Education Revised (SACIE-R) Scale" (Forlin et al., 2011), the "Attitudes toward Teaching All Students (ATTAS-mm) Scale" (Gregory & Noto, 2012), the "Teacher Attitudes Toward Inclusion Scale (TATIS)" (Cullen et al., 2010), the "My Thinking about Inclusion (MTAI) Scale" (Stoiber et al., 1998), the "Teachers' Attitudes toward Inclusion Scale (TAIS)" (Monsen et al., 2015), the "Multidimensional Attitudes toward Inclusive Education Scale (MATIES)" (Mahat, 2008), and the "Concern about Integrated Education Scale (CIES)" (Sharma & Desai, 2002).

Initial Development

In the next stage, the initial development, the 125 items identified in the literature review were refined to 45 items suitable for inclusion in the initial version of the instrument. The development of the teachers' attitudes toward inclusive education instruments began with finding the reason for instrument development in Indonesia. As previously explained, the attitude of teachers toward inclusive education is one indicator of the success of inclusive education (Forlin et al., 2007; De Boer et al., 2011; Kurniawati et al., 2012), and Indonesia does not have a tool to measure teachers' attitudes toward inclusive education. In the current study, a five-point Likert scale was chosen. Five response categories have also been used in instruments that measure teachers' attitudes toward inclusive education studies (such as Stoiber et al., 1998; Gregory & Noto, 2012). The five scales are given labels from "strongly disagree" (SD) to "strongly agree" (SA).

Instrument Validate

In step three, experts were engaged to validate the instrument, confirming the content validity of the construct, refining definitions and identifying connections between items and the target construct. According to Creswell (2005) and Borg and Gall (1989), consulting two to three experts is recommended to establish content validity. A minimum score of 0.7 was set as the threshold for each item on the assessment indicator (Sudjana, 2011). In this

stage, a validation tool was created for use by experts in inclusive education, involving two professors and three professionals with Master's degrees in the field.

Initial Pilot Study

In step four, the 39-item scale was applied in an initial pilot study. The English version of the scale was first translated into Indonesian. Following the translation, a pilot study was conducted with 499 teachers from East Java, West Java and Yogyakarta. According to Field (2013), a sample of 300 cases is sufficient to conduct Exploratory Factor Analysis. So that this study will take a minimum sample size of 300 samples, this research will be held in Indonesia. To maintain the instrument's originality and ensure alignment with Indonesian inclusive education conditions, new items were developed using two methods. The first method involved analysing Indonesian regulations on inclusive education, while the second relied on interviews with teachers from inclusive schools. Teachers who had experience with students with SEN were chosen for interviews, with questions focused on the implementation of inclusive education and the challenges of teaching SEN students. In total, 23 teachers from five inclusive schools across Indonesia were interviewed. It took 45 days to compile the responses, and a structured interview format was used for consistency in data collection. The teacher that included in this phase is taken by purposive sampling.

Second Pilot Study

Finally, step five involved conducting a second pilot study with 1,206 teachers from the provinces of East Java, West Java and Yogyakarta. The same scale that was analysed in the initial pilot study was used in this second pilot study to evaluate its effectiveness further and gather more data on its reliability and validity.

Statistical analysis was conducted to assess the construct validity, criterion-referenced validity and internal consistency of the scale using the Statistical Package for the Social Sciences (SPSS) version 23.0 (Elliot & Woodward, 2014). Statistically, criterion validity is a technique for assessing independent criteria (concurrent validity) or a future standard (predictive validity) (Bellamy, 2014). The criteria for the Principal Component Analysis (PCA) approach used in this study were as follows:

1. The eigenvalue greater than one rule, ensuring that each component accounts for at least as much variance as a single item can theoretically explain (Cliff, 1988).
2. The identification of a well-defined elbow in the scree plot, indicating a sharp reduction in the variance explained by a given component, as described by Cattell (1966).

3. Considering the amount of variance explained by the final factor solution, with 50% to 60% of the variance accounted for by the selected factors and a minimum of 5% variance for each retained factor.

4. The use of parallel analysis (Lautenschlager, 1989).

Correlation analysis was conducted to identify the underlying construct for each component, using the correlation generated from each factor (Clark & Watson, 1995). Bivariate correlation analysis was performed using the Pearson product-moment correlation test. This test correlates or connects each component and is known for being the most stable method with the smallest standard error, making it applicable for any two variables regardless of their measurement method (Borg & Gall, 1989). A correlation coefficient of 0.60 or above was considered to indicate a significant, positive relationship (Creswell, 2005).

RESULTS

Development of an Initial Instrument to Measure Indonesian Teachers' Attitudes toward Students with Special Needs in an Inclusive Education Setting

Selecting the appropriate research articles is important in a literature review. The articles that contain suitable methods, results and questionnaire items are taken into consideration in this research. The articles have not mentioned the focus of the development of teachers' attitudes toward Inclusive Education, which was excluded from the corpus articles. This stage explains the sources that are the reference material for developing "Teachers' Attitudes toward Inclusive Education of Students with SEN" instruments. Based on the literature review, seven instruments were found that are suitable for the current study. Those instruments are considered to develop a measurement instrument of teacher attitude on inclusive education. Those instruments are included in SACIE-R (Forlin et al., 2011), ATTAs-mm (Gregory & Noto, 2012), TATIS (Cullen et al., 2010), MTAI (Stobier et al., 1998), TAIS (Monsen et al., 2015), MATIES (Mahat, 2008) and CIES (Sharma & Desai, 2002). All items in the instrument are coded "alphabetically" for the instrument and "numerically" for each item.

The questions are selected by combining those with the closest meaning, 125 items. For example, in the ATTAS-mm instrument, the following item is:

> Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms.

In the TATIS instrument:

> Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms.

In the TAIS instrument:

> The SEN Child probably develops academic skills more rapidly in a special classroom than in a regular classroom.

The three example items above are combined into one item.

A total of 125 items from seven scales previously used to assess teachers' attitudes toward inclusive education were initially considered for this study (All items can be seen from this link https://bit.um.ac.id/allitemitaie). These items were then reduced to 45 as part of the development process. The reduction involved two steps: first, items with similar meanings were merged into a single question, while new items were created to better reflect the conditions of inclusive education in Indonesia. This process included analysing Indonesia's inclusive education regulations and curriculum and conducting interviews with teachers who worked in inclusive schools. The interviews focused on the challenges of teaching students with SEN. The second step involved translating the initial product into Indonesian and unifying terminologies, such as replacing "students with disabilities" and "abnormal students" with "students with SEN." Negative or reverse items were marked with an 'R' to ensure clarity. This approach aimed to adapt the instrument to the Indonesian context while preserving its original intent.

Validating the Product by Experts

The criteria for selecting experts for the validation process were based on their competence, knowledge and relevance to the field of research. For this stage, two professors and three experts with Master's degrees in inclusive education were chosen. The instrument used in the current study met the necessary requirements of the validation process conducted by the experts. Although each item on the instrument was deemed feasible and did not require significant revision, the experts' comments and suggestions were still taken into account for further improvement.

The validation process took two months to complete. Experts from the previous stage were contacted and asked to evaluate the instrument. Those who were willing to provide feedback received a letter along with the instrument, which measured teachers' attitudes toward inclusive education, and a validation sheet. The experts were given one month to assess and return the completed items. The analysis used for the validation process was based on criteria analysis by Carmines and Zeller (1991) and Fink (1995), which included evaluating aspects such as clarity, wordiness, negative phrasing, overlapping responses,

balance, use of jargon, appropriateness of listed responses, technical language, practical applicability and relevance to the research problem.

The use of experts in developing the instrument of teacher attitudes towards Inclusive Education is based on scientists' trust in their expertise. In "public trust in expert knowledge," symposium, Camporesi et al. (2017) state that scientists must trust the competence and knowledge possessed by experts. The most important thing in the validation process by experts is the suitability of the field of research with the expertise. In the current study, a validation sheet was developed that was used by experts for assessing the instrument. In this activity, two professors and three experts with Master's degrees in the field of inclusive education were selected. Based on the validation by five experts, the instrument developed to measure Indonesian teachers' attitudes toward inclusive education met the content validity requirements (see Appendices A and B). Each item was deemed eligible with a minimum score of 70%, indicating a good quality. The overall scores for each item were generally around 80%, reflecting a solid quality standard. After the first revision, the number of items on the scale was reduced from 45 to 39, following expert recommendations, as some items were found to serve the same purpose. While the instrument had undergone the validation process, there could still be potential errors remaining. Therefore, further revisions could have been made to enhance the instrument.

Pilot Study of the Scale and Revision

The pilot study was conducted in two phases. The first pilot study involved 499 teachers from three provinces in Indonesia: East Java (n = 206, 41.0%), West Java (n = 153, 30.4%), and Yogyakarta (n = 144, 28.6%) (see Table 2). The participants worked at various educational levels, including elementary schools (n = 275, 55.1%), junior high schools (n = 60, 12.0%), and senior high schools (n = 164, 32.9%). In terms of gender, 27.5% (n = 137) of the participants were male, while 72.5% (n = 362) were female. Regarding age distribution, 17.9% (n = 90) of the participants were under 31 years old, 35.6% (n = 179) were between 31 and 40 years old, 19.8% (n = 99) were between 41 and 50 years old, and 26.3% (n = 131) were 51 years old or older.

Table 2. Descriptions of the participants in first trial step (total sample, N = 499)

Demographic information	*n*	Percentage
Gender		
Male	137	27.5
Female	362	72.5

(continued on next page)

Demographic information	*n*	Percentage
Province		
East Java	206	41.0
West Java	153	30.4
DI Yogyakarta	144	28.6
School level		
Elementary	275	55.1
Junior High School	60	12.0
Senior High School	164	32.9
Last Education		
Bachelor	421	84.4
Higher than Bachelor	78	15.6

Based on the component analysis using PCA and varimax rotation with the Kaiser normalisation method, seven components were identified, all with eigenvalues greater than 1.0. The number of items in these components ranged from three to six. The Kaiser-Meyer-Olkin measure of sampling adequacy was found to be 0.870, indicating good sampling adequacy. Additionally, the total explained variance was 54.8%. The reliability of the instrument, as calculated using Cronbach's alpha, was 0.872 for all 32 items. At this stage, the instrument consisted of 32 items, which were then retested in the second pilot study.

Table 3 shows the second pilot study involved 1,206 teachers from three provinces in Indonesia: East Java (*n* = 440, 36.5%), West Java (*n* = 595, 49.3%), and Yogyakarta (*n* = 171, 14.2%). The participants worked in elementary (*n* = 671, 55.6%), junior high (*n* = 226, 18.7%), or senior high schools (*n* = 309, 25.6%). Regarding gender distribution, 23.3% (*n* = 281) were male, and 76.7% (*n* = 925) were female. Most participants (93.9%, *n* = 1,132) held a Bachelor of Education (B.Ed.) degree, while 6.1% (*n* = 74) held a Master of Education (M.Ed.) degree.

Table 3. Descriptions of the participants in the second trial step

Demographic information	Descriptive	
	n	Percentage
Gender		
Male	281	23.3
Female	925	76.7
Province		
East Java	440	36.5
West Java	595	49.3
Yogyakarta	171	14.2
Level of school		
Elementary	671	55.6
Junior High School	226	18.7
Senior High School	309	25.6
Last education		
Bachelor's degree	1,132	93.9
Higher than Bachelor's degree	74	6.1
Total	1,206	100.0

Unidimensionality was confirmed through a component analysis conducted on the dataset collected from 1,209 participants. The PCA resulted in a scale comprising six components, each with a total of 22 items. A Kaiser-Meyer-Olkin value of 0.850 indicated adequate sampling. The total explained variance was 54.4%. The components derived from the PCA varied in size, ranging from three to five items. The reliability of the instrument, measured using Cronbach's alpha, was 0.821 for all 22 items (see Table 4 for details).

Table 4. Results of the PCA of the second pilot study

Item	1	2	3	4	5	6
Item_Number_40	0.728	0.027	0.087	0.251	0.147	0.071
Item_Number_38	0.677	0.150	0.199	0.119	0.083	–0.008
Item_Number_30	0.671	0.031	0.029	0.112	–0.010	0.190
Item_Number_29	0.659	0.131	0.173	–0.022	0.066	0.171
Item_Number_28	0.614	0.099	–0.006	0.198	–0.064	–0.122
Item_Number_15	0.120	0.800	0.046	0.050	0.004	0.053
Item_Number_14	0.016	0.781	0.057	0.003	0.083	0.018
Item_Number_16	0.156	0.628	0.107	0.243	–0.007	–0.064
Item_Number_13	0.114	0.620	0.282	0.223	–0.011	0.022
Item_Number_5	0.084	0.050	0.723	0.204	0.215	0.080
Item_Number_6	0.039	0.063	0.676	0.254	0.282	0.067
Item_Number_8	0.081	0.150	0.647	0.103	–0.082	–0.040
Item_Number_12	0.227	0.161	0.614	–0.053	–0.058	0.098
Item_Number_24	0.213	0.064	0.116	0.749	0.037	0.115
Item_Number_23	0.206	0.120	0.193	0.692	–0.007	0.011
Item_Number_25	0.166	0.370	0.114	0.689	0.055	–0.002
Item_Number_2	–0.002	–0.020	0.184	0.141	0.724	0.107
Item_Number_17	0.188	–0.013	0.182	0.014	0.666	–0.075
Item_Number_4	–0.020	0.084	–0.136	–0.070	0.600	–0.026
Item_Number_21	–0.001	–0.010	–0.139	0.046	–0.008	0.781
Item_Number_10	0.079	0.017	0.106	–0.033	–0.109	0.671
Item_Number_22	0.135	0.017	0.174	0.098	0.140	0.541
Cronbach's alpha	0.746	0.733	0.681	0.703	0.760	0.742
No. of items for Cronbach's alpha	5	4	4	3	3	3

Notes: Pattern of the matrix of the PCA, varimax with Kaiser normalisation. $N = 1{,}206$ teachers. Data in bold indicate the highest factor loading for each item, representing the primary component to which the item most strongly contributes in the PCA analysis.

Criterion-referenced validity was assessed using SPSS 23.0 (Elliot & Woodward, 2014) through Pearson product-moment correlation analysis on the six components derived from the PCA process. Pearson's correlation was used to evaluate the relationship between each component. In the second pilot study phase, the correlation analysis revealed that all components were statistically significant, with an average level of significance of 1% (see Table 5). Thus, the findings from both the PCA and correlation analysis confirmed that each component demonstrated valid and significant correlations.

Table 5. Component correlation matrix for the instrument in the second pilot study (N = 1,206)

Component	Comp_1	Comp_2	Comp_3	Comp_4	Comp_5	Comp_6
Comp_1	1					
Comp_2	0.314**	1				
Comp_3	0.301**	0.411**	1			
Comp_4	0.284**	0.282**	0.305**	1		
Comp_5	0.248**	0.350**	0.301**	0.164**	1	
Comp_6	0.296**	0.244**	0.311**	0.261**	0.088**	1

Note: ** correlation is significant at the 1% level (2-tailed).

The result of this step was the final instrument designed to measure Indonesian teachers' attitudes toward inclusive education. The number of items in the instrument was reduced from 32 to 22, and the final version (see Appendix C) was prepared for use in assessing teachers' attitudes. This adjustment aimed to simplify the data tabulation process. Of the 22 items, only three reflected a positive attitude toward inclusive education. Initially, the instrument's rating scale ranged from one ("strongly agree") to five ("strongly disagree"). However, after completing the instrument, the reversed items—numbers 1, 2 and 3—were adjusted accordingly to ensure clarity, with special markings applied to these items to avoid confusion.

DISCUSSION

The development of the scale in this study involved a comprehensive review of seven previously developed instruments, which were then supplemented with context-specific items to align with the inclusive education framework in Indonesia. This process led to the creation of 22 items that were considered suitable for measuring teachers' attitudes toward inclusive education in the Indonesian context. First, seven previous instruments (Forlin et al., 2011; Gregory & Noto, 2012; Cullen et al., 2010; Stoiber et al., 1998; Monsen et al., 2015; Mahat, 2008; Sharma & Desai, 2002) were reviewed to aid in the development of the proposed instrument. This approach enabled the researchers to gather a broad range of items for further analysis, ensuring a comprehensive understanding of teachers' attitudes toward inclusive education. By utilising this procedure, it was assumed that the items in the new instrument could be separated and effectively used, reflecting a general understanding of inclusive education.

After completing the content, construct, criterion-referenced validity and reliability analyses, the initial 125 items were reduced to 45 by eliminating items with similar meanings. These 45 items were then validated by five experts, resulting in a further reduction to 39 items, forming the initial English version of the instrument. Following a second validation

and revision process, the number of items was decreased to 32. Subsequently, 12 new items were added better to reflect the conditions of inclusive education specific to Indonesia, bringing the total to 40 items for the third stage of validation and revision. Ultimately, after refining the instrument through these stages, the final version of the scale, named as ITAIE, containing 22 items, was ready to be used to measure teachers' attitudes toward inclusive education in Indonesia.

The Indonesian Teachers Attitudes toward Inclusive Education (ITAIE) Scale has been demonstrated to be both valid and reliable. The first validation process involved five experts, including two with doctoral degrees and three with Master's degrees. In the second validation, which was conducted through an initial pilot study with 499 teachers, the smallest PCA value was 0.336. Following this, a second validation process with 1,206 teachers yielded a minimum PCA value of 0.541, confirming the construct validity of the scale. The Cronbach's alpha value for the instrument in this study was 0.821, indicating a strong level of internal consistency and reliability.

In the current study, the ITAIE Scale has proven effective in measuring the attitudes of Indonesian teachers toward inclusive education. Moving forward, it would be beneficial to expand the measurement of teachers' attitudes to encompass a wider range of regions across Indonesia. This would provide a more comprehensive understanding of the national landscape regarding inclusive education. Additionally, as the study suggests, teacher training programmes should prioritise inclusive education, as such training has a significant positive impact on teachers' attitudes toward inclusion. By focusing on professional development in inclusive practices, educators can be better equipped to support diverse learners in inclusive settings. Although the present article does not delve into the internal structure of the ITAIE, it is important to note that the scale comprises six key components:

1. Creating an accepting environment for all students (three items).
2. Problems of students with SEN in the inclusive classroom (four items).
3. Professional responsibilities in inclusive education (four items).
4. Professional knowledge about inclusive education (three items).
5. Implications of inclusive education (three items).
6. Inclusive education perspective in Indonesia (five items).

Future research should investigate these components in greater depth to gain a deeper understanding of specific dimensions of teacher attitudes.

Besides that, the ITAIE Scale can be further refined to improve its ability to measure teachers' attitudes toward inclusive education more effectively. By ensuring that the

grouped items accurately reflect the components that influence teachers' attitudes, the scale can offer more precise insights into their perspectives. Educational leadership has shifted, with both principals and teachers now expected to collaborate as professionals in building an inclusive education system. To foster positive attitudes toward inclusive education, teachers must receive support from school leaders and the government. The ITAIE Scale, as developed in this study, can play a vital role in supporting formative assessments and guiding professional learning for educators. Moreover, attitude measurement instruments, like the ITAIE Scale, provide valuable feedback on the effectiveness of professional training for teachers (Forlin et al., 2011). For the government, this instrument could serve as a standardised tool for assessing teachers' attitudes toward inclusive education across Indonesia, ensuring consistency and facilitating targeted improvements in inclusive practices nationwide.

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APPENDICES

Appendix A

The Results of Validation Indicators For Each Item in the Validation Sheet

No.	The validation indicators for each item	Lowest percentage	Item number	Decision
1	The statement is specific.	85	12, 44	Decent quality
2	The statement is direct.	90	22, 23, 24, 26	Decent quality
3	Participants will be able to understand what is being asked.	75	14	Quite decent quality
4	There is no double-barreled statement (two statement in one)	85	2	Decent quality
5	The statement is concise.	80	22, 23	Decent quality
6	No unnecessary words.	75	10, 11, 23, 24	Quite decent quality
7	The statement is asked using the affirmative (e.g., Instead of asking, "Which methods are not used?"), the researcher asks, "Which methods are used?")	70	35	Quite decent quality

No.	The validation indicators for each item	Lowest percentage	Item number	Decision
8	The response includes only one option.	85	2, 3, 7, 27	Decent quality
9	Unambiguous sentence.	75	23	Quite decent quality
10	The statement is unbiased and does not lead the participants to a response.	65	10	Quite decent quality
11	The statement is asked using a neutral tone.	80	21	Decent quality
12	The terms used in the statement are understandable by the target population.	75	3, 5, 10, 11	Quite decent quality
13	The words in the question do not contain cliches or hyperboles.	85	4	Decent quality
14	Communicative sentence.	90	5, 15, 28, 44	Decent quality
15	The language used in the statement is good and correct according to the language.	70	5	Quite decent quality
16	The formulation of sentences does not contain words that can offend readers.	85	24	Decent quality
17	The responses apply to all situations or offer a way for those to respond with unique situations.	85	2	Decent quality
18	The use of technical language is appropriate.	75	5	Quite decent quality
19	The use of technical language is clear.	75	4, 14	Quite decent quality
20	THe statement is related to the daily practices or expertise of the participant.	90	6, 7, 24, 31,	Decent quality

Appendix B

The Results of Instrument Validation

No.	Instrument validation indicators	Total score	%
1	The choices listed allow participants to respond appropriately.	19	95.0
2	All acronyms are defined.	15	75.0
3	The statements are sufficient to resolve the problem in the study.	17	85.0
4	The statements are sufficient to answer the research questions.	15	75.0
5	The statements are sufficient to obtain the purpose of the study.	17	85.0
6	The instrument view does not overlap.	15	75.0
7	THe content on the page is not too dense.	14	70.0
8	The font size used is appropriate.	18	90.0
9	The font size used is easy to read.	18	90.0
10	The font type used is consistent.	18	90.0
11	The participant easily learns the instrument filling instructions.	17	85.0
12	Participants will be able to answer the instrument easily.	14	70.0
13	The navigation system is consistent throughout the instrument.	17	85.0
14	No statements are repeated.	16	80.0
15	The number of questions in this instrument is sufficient to measure attitudes toward Inclusive Education.	15	75.0
16	THese directions on the first page make it easier for teachers to fill out the instrument.	17	85.0
17	The definition of Inclusive Education on the first page of the instrument provides a clear picture of Inclusive Education.	15	75.0
18	These filling directions on the first page make it easier for teachers to fill out the instrument.	18	90.0

Notes: The results are validation from five experts, the maximum score is 20, and the minimum score is 5.

Appendix C

The Scale to Measure Indonesian Teachers' Attitudes toward Student with Special Needs in Inclusive Education Setting

Respendents data

No	Questions	Anwers
1	Gender*	1. Male 2. Female
2	Age	…. Years
3	Province	…….
4	Type of schools*	1. Inclusive School 2. Special School 3. Regular School
5	Level of schools*	1. Elementary School/ equivalent level 2. Junior High School/ equivalent level 3. Senior High School/ equivalent level
6	Level of Education*	1. Bachelor 2. Master 3. Doctor
7	Subject of Teaching	1. Science (Science, Physics, Biology or Chemistry) 2. Other Subject, specify …….
8	Teaching Experience	…. Years
9	Experience in Inclusive Schools	…. Years
10	Training Programme in Inclusive Education*	1. Ever 2. Never
11	Interaction with Special Education Needs Students*	1. Ever 2. Never

Note: * Circle or cross in the numbers that fit on you

Directions:

The purpose of this confidental survey is to obtain an accurate and valid appraisal of your attitude toward inclusive education i.e. students with special education needs in the regular classroom (inclusive schools) with mild to moderate disabilities. Because there are no "right" or "wrong" answers to these items and confidential, please respond candidly.

Definition of Inclusive Education:

In accordance with the Regulation of the Minister of National Education of the Republic of Indonesia Number 70 Year 2009, Inclusive Education is defined as an education system that provides opportunities for all students who have disabilities and have the potential of intelligence and / or special talents to follow education or learning in an educational environment together with learners in general. Student disabilities include Learning Disabilities; Deaf and Hard of Hearing; Visual Impairments; Physical Handicaps; Speech Disorders; Mild/Moderate Emotional Disturbance; Intellectual Disabilities; Mental Disorder; Autism; or Trauma Brain Injury.

Directions for filling the Questionnaire:

The extent to which you **(1) Strongly Agree (SA), (2) Agree (A), (3) Neutral (N), (4) Disagree (D), or (5) Strongly Disagree (SD)** of the statement below by encircling or crossing the corresponding answer in the right column of each statement.

No.	Statements	SA	A	N	D	SD
1	Regular classrooms setting can create a welcoming classroom environment for all students, including students with SEN.	1	2	3	4	5
2	It rarely happens a case to drop out the students with SEN from regular classrooms in order to meet their educational needs.	1	2	3	4	5
3	It is difficult to maintain discipline in a regular classroom that contains students with SEN.	1	2	3	4	5
4	Students with SEN are likely to create confusion in the regular classroom.	1	2	3	4	5
5	The behavior of the students with SEN gives a bad example for the other students.	1	2	3	4	5
6	Inclusive Education for All Students requires extensive retraining of regular classroom teachers.	1	2	3	4	5
7	Most of the students with SEN do not make an adequate effort to complete their assignments.	1	2	3	4	5
8	I get frustrated when I have difficulty communicating with students with SEN.	1	2	3	4	5
9	I get upset when students with SEN cannot follow the lesson in my classroom.	1	2	3	4	5
10	I get irritated when I am unable to understand students with SEN.	1	2	3	4	5

No.	Statements	SA	A	N	D	SD
11	I get frustrated when I have to adapt the lesson to meet the individual's needs of all students.	1	2	3	4	5
12	Including students with SEN in regular classrooms is effective because they can learn the social skills necessary for success.	1	2	3	4	5
13	I must learn more about the effects of inclusive classrooms before inclusive classrooms take place on a large scale.	1	2	3	4	5
14	Students with SEN will probably develop academic skills more rapidly in a separate special classroom than in an inclusive classroom.	1	2	3	4	5
15	Students with SEN monopolize teachers' time.	1	2	3	4	5
16	My workload will be increased if I have students with SEN in my class.	1	2	3	4	5
17	I will be more stressed if I have students with SEN in my class.	1	2	3	4	5
18	I will not receive enough incentives (e.g., additional remuneration or allowance) to integrate students with SEN.	1	2	3	4	5
19	There will be inadequate special teachers who available to support Inclusive Education.	1	2	3	4	5
20	My school will not have adequate special education instructional materials and teaching aids, e.g., Braille.	1	2	3	4	5
21	Students with SEN are not accepted into regular schools because they do not qualify for the selection of new students.	1	2	3	4	5
22	Indonesia does not yet have a curriculum for inclusive education, so it cannot be applied properly.	1	2	3	4	5

THANKS FOR COMPLETING THIS INSTRUMENT