

# Construct validation of the teacher attitude to inclusion scale for Filipino pre-service teachers

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## Abstract

Inclusive education is one of the visions of the global agenda of “*education for all*.” It aligns with Sustainable Development Goal 4: “*Ensure inclusive and equitable quality education and promote life-long learning opportunities for all*” (Harrington, 2016, p.30). The teacher’s attitude is one of the identified factors in the effective implementation of inclusive education. Hence, schools in the Philippines would require tools that measure the teachers’ attitudes toward inclusive education as they plan to accommodate inclusive education in their classrooms as mandated by Republic Act No. 11650: “*Instituting a Policy of Inclusion and Services for Learners with Disabilities in Support of Inclusive Education Act*.” This study examined the theoretical model of the Teacher Attitude to Inclusion Scale (Monsen, Ewing, & Boyle, 2015), specifically section 4 of the scale: “*Attitudes toward Inclusion*,” through a cross-sectional, explanatory nonexperimental design utilizing both between-network and between-network construct validation approaches. The participants were 417 pre-service teachers from private and state-owned universities in Luzon, Visayas, and Mindanao, selected through convenience sampling. They completed two sets of measures online, the fourth section of the Teacher Attitude to Inclusion and the Teachers’ Sense of Efficacy Scale (Tschannen-Moran & Hoy, 2001). The results of within-network and between-network construct validation suggest the acceptability of the reduced 10-item of section 4 of the Teacher Attitude to Inclusion Scale among Filipino pre-service teachers. Based on confirmatory factor analysis, the data fit the three-factor structure (i.e., factors 1, 2, and 4) rather than the original four-factor structure suggesting within-network construct validity. Furthermore, the relationships between the TAIS and the TSES subscales were positively correlated, indicating the TAIS’s between-network construct validity. Since

this scale is psychometrically sound for Filipino pre-service teachers, it is recommended to consider extending this study by examining the applicability of this scale to in-service teachers.

**Keywords:** inclusive education, teacher efficacy, between-network construct validation, within-network construct validation, confirmatory factor analysis

## Background of the Study

On March 11, 2022, Republic Act No. 11650, known as *Instituting a Policy of Inclusion and Services for Learners with Disabilities in Support of Inclusive Education Act*, was signed into law (Official Gazette, 2022). This mandate ensures that all learners with disabilities have fair access to inclusive education in all of the schools in the country (Gita-Carlos, 2022). By definition, inclusive education, according to Kurth and Gross (2014, p.5), “means that a student must have access to all of the supports and services he or she will need to participate fully in general education activities and curriculum.” It is one of the visions of the global agenda of “education for all” (UNESCO: Education Sector, 2017; Unesco, 1994; United Nations Educational Scientific and Cultural Organization, 2021; World Education Forum, 2015) and aligns with Sustainable Development Goal 4: “*Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all*” (Harrington, 2016, p.30). Even before the enactment of RA 11650, there were already laws and policies crafted to ensure and safeguard the protection of the rights of persons with disabilities to have access to education: The 1987 Constitution of the Philippines, Republic Act No. 7277 or the 1992 Magna Carta for Disabled Persons among others (Commission on Higher Education, 2017; TESDA, 2020).

The fulfillment of these mandates, as the literature would suggest, may rest on the teachers who can successfully manage to help students with special needs to cope with their learning environment while they hone and develop their knowledge, skills, and values (Dela Fuente, 2021). The teacher’s attitude is one of the identified factors in the effective implementation of inclusive education (Tuncay & Kizilaslan, 2022; Raguindin, Ping, Duereh, & Lising, 2020). According to Eagley and Chaikan (1993, as cited in Eagly & Chaiken, 2007, p. 582), an attitude is defined as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor.” These “attitudes and beliefs have a powerful influence on how successfully inclusive educational practices are implemented, with negative attitudes toward inclusion inhibiting the success of the implementation of inclusive education (Monsen, Ewing, & Boyle, 2015, p. 64).” Hence, schools in the Philippines would need tools that measure the teachers’ attitudes toward inclusive education as they plan to accommodate inclusive education in their classrooms. In addition to that, school administrators and other program implementers would require assessment tools to aid in their management decision-making, such as training teachers as the

implementers of this mandate, because inclusive education requires not only a shift in the school's infrastructure but also a shift in the school's curricula (Unesco, 1994).

### ***Teacher Attitude to Inclusion Scale***

Currently, most of the available scales that measure teachers' attitudes toward inclusion are all Western. One of these is the *Teacher Attitude to Inclusion Scale* (TAIS) developed by Monsen, Ewing, and Boyle (2015) based on Larrivee and Cook's (1979) *Opinions Relative to Mainstreaming Scale* (ORMS). This multidimensional scale has four sections. These include the following: *Section 1: Demographics*, which asks about the teacher's personal information, such as age, gender, years of teaching experience, educational qualifications, and level of contact with children with SEN. *Section 2: Willingness to include*, which asks about the willingness of the teacher to include children with SEN with various disabilities such as physical, behavioral, social, emotional, and learning disabilities. *Section 3: Adequacy of Support*, which asks whether the teacher receives adequate support in terms of facilities, learning materials, general school support, educational psychologists, parents or care helpers, support from colleagues, and others. Lastly, *Section 4: Attitude towards inclusion*, composed of a 20-item question that intends to measure the level of agreement of the teacher toward including children with SEN in the mainstream or traditional classroom environment.

Further, this section, "*Attitude towards inclusion*," particularly has four identified distinct factors based on the exploratory principal component analysis (PCA) conducted by Monsen, Ewing, and Boyle (2015). The factors that were identified were the following: a.) Factor 1: *Problems of inclusion of SEN children in mainstream classes*; b.) Factor 2: *Social benefits for all of the inclusion of SEN pupils in mainstream classes*; c.) Factor 3: *Implications of inclusion for teaching practice*; and d.) Factor 4: *Implications for addressing the needs of children with SEN*.

### ***Construct Validation***

This "*Attitude towards inclusion*" of the TAIS has the potential for local use if adapted using construct validation. This type of validation procedure is "a method for checking the consilience of questionnaires with the background knowledge about the property in question" (Alexandrova & Haybron, 2016, p. 1098). According to Martin and Marsh (2006), construct

validation may involve two approaches: within-network and between-network studies. The former investigates the construct's internal structure or dimensionality, whether it is a single dimension or can be decomposed into several dimensions using an analytical procedure called factor analysis, such as principal component analysis (PCA), exploratory factor analysis (EFA), or confirmatory factor analysis (CFA) (Cong, & Cheong, 2022; Johnson & Christensen, 2000; Martin & Marsh, 2006). While the latter "attempt to establish a logical, theoretically consistent pattern of relations between constructs" by employing "correlational, regression, or cluster analyses to examine relationships between measures and instruments" (Martin & Marsh, 2006, p. 267).

The significance of examining the psychometric elements of adopted instruments before their utilization in different contexts has been underscored in the literature. For example, Maneesriwongul and Dixon (2004) emphasized that cross-cultural validation of measures must be conducted before using it on groups other than the intended population because this scale may operate differently with other cultures (Clark & Watson, 2019; Fischer, 2004; Hambleton, 2001). It is not only impetuous to use foreign-produced psychological measures without subjecting them to a validation procedure (Bernardo, 2011), but using unvalidated measures can do more harm than good because they likely generate unreliable results and may subsequently produce flawed findings (Clark & Watson, 2019; Flake, Pek, & Hehman, 2017; Goni et al., 2020; Vazire, Schiavone, & Bottesini, 2022).

There are several Western constructed measures that have been adopted locally that underwent construct validation prior to their use. For example, a few items were removed from *Ryff's Psychological Well-being Scale* to yield acceptable CFA fit indices for the six-factor structure a priori (Villarosa & Ganotice Jr., 2018). In *Auckland Individualism and Collectivism Scale*, "the results provide further support for the structural aspects of the AICS' construct validity; however, some minor issues were noted at the level of individual items and subscales" (Bernardo, Lising & Shulruf, 2012, p. 33). Another is *Academic Buoyancy Scale*; this scale is applicable in the local setting; however, there was an issue of gender invariance indicating that males scored significantly higher than females (Datu & Yang, 2018). These are just a few examples in the extant literature that underscores the importance of performing construct validation on foreign-produced measures before their adoption for local use.

Hence, this construct validation study of the “*Attitude towards inclusion*” of the TAIS was a step toward providing a valid and reliable measure in determining the readiness of Filipino pre-service teachers to implement inclusive education in their future classrooms. Furthermore, this study also highlighted the suitability of this measurement scale in the Philippines context.

This research aimed to investigate the psychometric properties of the “*Attitude towards inclusion*” section of the *Teacher Attitude to Inclusion Scale* (TAIS) by extending the exploratory principal component analysis (PCA) research conducted by Monsen, Ewing, and Boyle (2015) by means of employing both *within-network* and *between-network construct validation* approaches among Filipino pre-service teachers.

Specifically, the following objectives guided this study:

1. To examine the within-network construct validity of the “*Attitude towards inclusion*” section of the TAIS through confirmatory factor analysis (CFA); and
2. To investigate the between-network construct validity of the “*Attitude towards inclusion*” section of the TAIS by correlating its subscales with the *Teachers’ Sense of Efficacy Scale* (TSES) subscales.

## **Conceptual Framework**

This research examined the construct validity of a Western-developed measure, the “*Attitude towards inclusion*” section of the *Teacher Attitude to Inclusion Scale*, for its adoption for local use, specifically with the pre-service teachers. Construct validation provides empirical support concerning the hypothesized relationships within the nomological network of a given construct (Byrne, 1984; Simms & Watson, 2009).

This also extended the research of Monsen, Ewing, and Boyle (2015) on the exploratory principal components analysis (PCA) of the hypothesized internal structure of this scale by conducting confirmatory factor analysis (CFA). The latter analytical approach particularly “examines the extent to which a highly constrained a priori factor structure is consistent with the sample data” (Byrne, 2005, p. 18). According to Matsunaga (2010,

p. 108), “researchers [who are] interested in identifying the underlying structure of data and/or developing a valid measurement scale should consider using CFA as the primary option.” Byrne (2005, p. 17) recommended confirmatory factor analysis (CFA) as the appropriate analytical tool to use “when the researcher has some knowledge of the underlying latent variable structure.” Similarly, Ziegler (2014) suggested that CFA is the most suitable procedure for testing assumptions about the connections between scales’ dimensions or factors.

Construct validation research or “nomological research involves internal and external examinations of the construct” (Byrne, 1984, p. 428); in other terms, they are known as within-network and between-network studies, respectively (Ganotice Jr. et al., 2022); Martin & Marsh (2006). As the term put forward by Cronbach (1971 as cited in Byrne, 1984), within-network construct validation research investigates the scale’s internal structure (Knekta, Runyon, & Eddy, 2019), while between-network construct validation research examines the relationship between scales or measures (Knekta et al., 2019). Shavelson and associates (1976, as cited in Byrne, 1984) asserted that within-network construct validation research must be conducted first before carrying out between-network construct validation research.

In examining the underlying structures of the “*Attitude towards inclusion*” section of the TAIS, this research adopted a construct validation approach (Martin & Marsh, 2006). This approach typically utilizes one of the following: within-network (structural), between-network (external), or a combination of both within-network and between-network construct validations in a single study (Flake, Pek, & Hehman, 2017). Within-network construct validation is performed by determining the intercorrelation of the subscales of particular measures through confirmatory factor analysis (CFA), while between-network construct validation is accomplished by correlating the subscales of one measure to other external theoretically-relevant subscales of other measures (Ganotice Jr. et al., 2022; Martin & Marsh, 2006).

To make this construct validation procedure robust, this study utilized both within-network and between-network construct validation approaches. Within-network construct validation investigated the TAIS's internal factor structures using confirmatory factor analysis (CFA). In contrast, between-network construct validation determined the correlation between the subscales of the “*Attitude towards inclusion*” section of the

*Teacher Attitude to Inclusion Scale* (TAIS) to another theoretically relevant measure. According to Bandura (1997, p. 37), self-efficacy is “the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations.” Moreover, this belief held by a person influence both their behaviors and performance outcomes (Bandura, 1977). In this study, The subscales of the “*Attitude towards inclusion*” section of the *Teacher Attitude to Inclusion Scale* (TAIS) were correlated to the subscales of the *Teachers’ Sense of Efficacy Scale* (TSES) because the extant literature supported that teachers’ positive attitude toward inclusive education was significantly positively related to their self-efficacy (Avramidis, Toulia, Tsihouridis, & Strogilos, 2019; Hernandez, Hueck, & Charley, 2016; Saloviita, 2020; Urton, Wilbert, & Hennemann, 2014; Weisel & Dror, 2006). Further, Yada, Leskinen, Savolainen, and Schwab (2022), in their meta-analysis, noted a moderate positive correlation between teachers' sense of self-efficacy and attitude toward inclusive education. Additionally, the TSES has been validated with Filipino teachers (Sales, Uchi, & Solsona, 2022). Therefore, in this study, it was hypothesized that the subscales of the “*Attitude towards inclusion*” section of the *Teacher Attitude to Inclusion Scale for Filipino Pre-Service Teachers* (TAIS-FPT) should positively correlate with the subscales of the *Teachers’ Sense of Efficacy Scale* (TSES).

## **Methodology**

### ***Research Design***

This construct validation study that examined the theoretical model of the “*Attitude towards inclusion*” of the TAIS developed by Monsen, Ewing, and Boyle (2015) utilized a cross-sectional, explanatory nonexperimental design (Johnson, 2001).

### ***Participants***

The participants of this study were 417 Filipino pre-service teachers from both private and state-owned universities in Luzon, Visayas, and Mindanao. There were 313 (75.1%) females and 104 (24.9%) males, with a mean age (ranging from 18 to 44) of 20.84 and a standard deviation of 2.76. They were selected using convenience sampling. According to Urdan (2017, p. 3), this type of sampling allows researchers to gather research participants based on “proximity, ease of access, and willingness to participate.” One of the rules of thumb in SEM is the minimum sample sizes



in absolute Ns. According to Comrey and Lee (1992, as cited in Kyriazos, 2018), a factor analysis with a sample size of at least 300 is considered good. In terms of the inclusion and exclusion criteria of the participants, the inclusion criteria were 1. Male or female, 2. Student of BSEEd, BSEd, or any education program in a public or private institution, and 3. First year to fourth-year level. In contrast, the exclusion criterion was students not in the education program.

### **Measures**

Two sets of questionnaires were utilized in this construct validation study. These were the *Teacher Attitude to Inclusion Scale* (TAIS) and the *Teacher's Sense of Efficacy Scale* (TSES). The descriptions of each measure are given below.

*Teacher Attitude to Inclusion Scale (TAIS)*. The TAIS by Monsen, Ewing, and Boyle (2015) has four sections that include the following: Section 1: *Demographics*; Section 2: *Willingness to Include*; Section 3: *Adequacy of support*; and Section 4: *Attitudes toward inclusion*. In this study, only section 4 of the TAIS was used. The *Attitudes toward inclusion* is a 20-item questionnaire based on Larrivee and Cook's (1979) *Opinions Relative to Mainstreaming Scale* (ORMS), which has an 8-point Likert-type response format ranging from 1 (Strongly Agree) to 8 (Strongly Disagree). This scale has four dimensions: a.) *Problems of inclusion of SEN children in mainstream classes*; b.) *Social benefits for all of the inclusion of SEN pupils in mainstream classes*; c.) *Implications of inclusion for teaching practice*; and d.) *Implications for addressing the needs of children with SEN*. In getting the scores of this scale, the mean of the items per factor must be computed. However, in factor 2, all five items (i.e., 10, 14, 18, 21, and 28) must be reversely scored before getting the mean score. To interpret these scores, a high mean score per factor indicates a more positive attitude toward inclusion, whereas a low score indicates a more negative attitude.

*Teachers' Sense of Efficacy Scale (TSES)*. The TSES by Tschannen-Moran and Hoy (2001) has three dimensions: (1) Efficacy in Student Engagement, (2) Efficacy in Instructional Strategies, and (3) Efficacy in Classroom Management. This scale has a 9-point Likert-type response format ranging from 1 (nothing) to 3 (very little) to 5 (some influence) to 7 (quite a bit) to 9 (a great deal). The means of the items per dimension should be computed to get the score. A high mean score on each scale indicates a strong teacher's sense of efficacy. Two scale versions exist; the long form

of the TSES has 24 items, while the short form has 12 items. In this study, the short form was used.

### ***Procedure***

Ethical approval was secured from the university's Research Ethics Board before the conduct of the study. Permission to administer the survey from the schools' administrators was also sought. The online survey was conducted using Microsoft Forms. A written consent form was presented to all participants before administering the two sets of questionnaires, assuring them of anonymity and the confidentiality of information. The data that were gathered were analyzed using JASP 0.16.2.

### ***Data Analysis***

Descriptive statistics were computed, specifically the mean, standard deviation, zero-order correlations, and the test for normality, including skewness and kurtosis. The reliability of the two measures (i.e., "*Attitude towards inclusion*" of the TAIS and TSES) was also determined using Cronbach's alpha.

In testing the hypothesized structural equation model of the "*Attitude towards inclusion*" of the TAIS, the two-step modeling approach, as recommended by Anderson and Gerbing (1988), was conducted. First, the measurement model of the latent constructs was assessed by performing Confirmatory Factor Analysis (CFA). Several goodness of fit indices were performed to examine the measurement model's construct validity based on Hu and Bentler's (1999) recommendations. These fit indices include the Chi-square test statistic, Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Tucker Lewis Index (TLI), Bentler-Bonett Normed Fit Index (NFI), and Root Mean Square Error of Approximation (RMSEA). Second, a correlation was performed to determine the relationship between the subscales of the "*Attitude towards inclusion*" of the TAIS with the subscales of TSES.

### **Results and Discussion**

The purpose of this paper was to investigate the psychometric properties of the "*Attitude towards inclusion*" section of the *Teacher Attitude to Inclusion Scale* (TAIS) of Monsen, Ewing, and Boyle (2015) by

extending their research on the exploratory principal components analysis (PCA) of this scale. Specifically, this paper took a step further in examining the psychometric properties of this scale among Filipino pre-service teachers employing both the within-network and between-network construct validation approaches.

To investigate the within-network construct validity of the “*Attitude towards inclusion*” section of the TAIS, a confirmatory factor analysis (CFA) was conducted. Moreover, to determine the between-network construct validity of the “*Attitude towards inclusion*” section of the TAIS, the subscales of this measure were correlated to the subscales of the *Teachers’ Sense of Efficacy Scale (TSES)*.

Before conducting these main analyses, a preliminary analysis of the gathered data was undertaken to ensure all assumptions like normality (e.g., skewness and kurtosis) and multicollinearity are not violated for accurate results as well as for sound judgment and interpretation. Moreover, the reliability of the measures per subscale was also determined based on its internal consistency.

### **Preliminary Analysis**

The items of the “*Attitude towards inclusion*” of the TAIS based on the normality test have a skewness that ranged from -1.42 to 2.38 and a kurtosis that ranged from -1.07 to 6.40. These values are within the acceptable limit because, according to Brown (2015), the values of skewness within the range of -3 and +3 and kurtosis within the range of -10 to +10 are considered acceptable when conducting structural equation modeling or SEM.

The subscales of the “*Attitude towards inclusion*” of the TAIS based on its internal consistencies, as shown in Table 1. were considered satisfactory: Factor 1: *Problems of inclusion of SEN children in mainstream classes* ( $\alpha = .80$ ); Factor 2: *Social benefits for all of the inclusion of SEN pupils in mainstream classes* ( $\alpha = .65$ ); Factor 3: *Implications of inclusion for teaching practice* ( $\alpha = .61$ ); and Factor 4: *Implications for addressing the needs of children with SEN* ( $\alpha = .58$ ). According to Taber, (2018), one of the handy qualitative descriptors in interpreting alpha values is that alpha must be at least .58 to .97 to be considered as satisfactory.

**Table 1.***Descriptive Statistics, Zero-Order Correlation, and Internal Consistencies*

Variables	1	2	3	4	5	6	7
1. TAIS Factor 1	—						
2. TAIS Factor 2	0.123 *	—					
3. TAIS Factor 3	0.467 ***	0.413 ***	—				
4. TAIS Factor 4	0.684 ***	0.194	0.515 ***	—			
5. TSES Factor 1	0.345 ***	0.041	0.061	0.097 *	—		
6. TSES Factor 2	0.307 ***	0.038	0.021	0.060	0.826 ***	—	
7. TSES Factor 3	0.339 ***	0.039	0.068	0.112 *	0.837 ***	0.836 ***	—
Mean	4.020	6.136	2.909	2.859	7.213	6.924	6.915
Standard Deviation	1.507	1.109	1.187	1.204	1.688	1.678	1.666
Cronbach's $\alpha$	0.816	0.646	0.608	0.577	0.872	0.889	0.863

$N = 417$ ; \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

The zero-order correlations of the four subscales of the “*Attitude towards inclusion*” of the TAIS, as shown in Table 1. are all positively correlated, ranging from ( $r = .12$ ) to ( $r = .68$ ). These given values of correlations indicate that no variables of interest are highly correlated; hence no indication of multicollinearity has been observed. According to Midi, Sarkar, and Rana (2010), as a general rule, a pairwise correlation coefficient value greater than 0.8 or 0.9 indicates severe multicollinearity, which “inflates the variances of the parameter estimates (Midi, Sarkar, & Rana, 2010, p. 256).

### Within-Network Construct Validity

The purpose of within-network construct validation was to investigate the “*Attitude towards inclusion*” section of the TAIS's internal factor structures using confirmatory factor analysis (CFA). Accordingly, the a priori model with four latent factors, namely: a.) Factor 1: *Problems of inclusion of SEN children in mainstream classes*, b.) Factor 2: *Social benefits for all of the inclusion of SEN pupils in mainstream classes*, c.) Factor 3: *Implications of inclusion for teaching practice*, and d.) Factor 4: *Implications for addressing the needs of children with SEN*, of the “*Attitude*

towards inclusion” of the TAIS was tested using confirmatory factor analysis (CFA).

The result of the confirmatory factor analysis (CFA) indicated that this a priori model failed to fit well with the data, wherein several items were observed to have factor loadings lower than .34 and standardized residuals over 2.58 (Stevens, 2002). To enhance the measurement model's fit indices, items with factor loadings lower than .34 and standard residuals over 2.58 were discarded. The desired fit indices were not achieved, albeit the items with low factor loadings and high standard residuals had been discarded. Therefore, Modification indices were inspected. According to Awang (2015), a high value of MI (above 15) indicates the presence of redundant items in the model. The redundant items with lower factor loading were deleted to solve this issue.

An improved model fit was observed when the ten poorly fitting items were identified and discarded. This also led to the reduction of the number of factors from four to three latent factors. The summary of the fit indices of the CFA is presented in Table 2. To interpret the Goodness of Fit Index (GFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and Bentler-Bonett Normed Fit Index (NFI) results, the value should be greater than .90. Therefore, these results suggest a perfect fit. Regarding the result of the Root Mean Square Error of Approximation (RMSEA), the value should be less than .08. Hence, this result suggests a close fit. Lastly, because the chi-square fit statistics are sensitive to a large sample size, and in practice, the chi-square test is “not always the final word in assessing fit” (West, Taylor, & Wu, 2012, p. 211), the ratio of the chi-square statistics to respective degrees of freedom is chosen. According to Cole (1987, as cited in Alavi et al., 2020), a ratio of  $\leq 2$  is indicative of superior fit.

**Table 2.**

*Summary of Goodness of Fit Indices of the CFA*

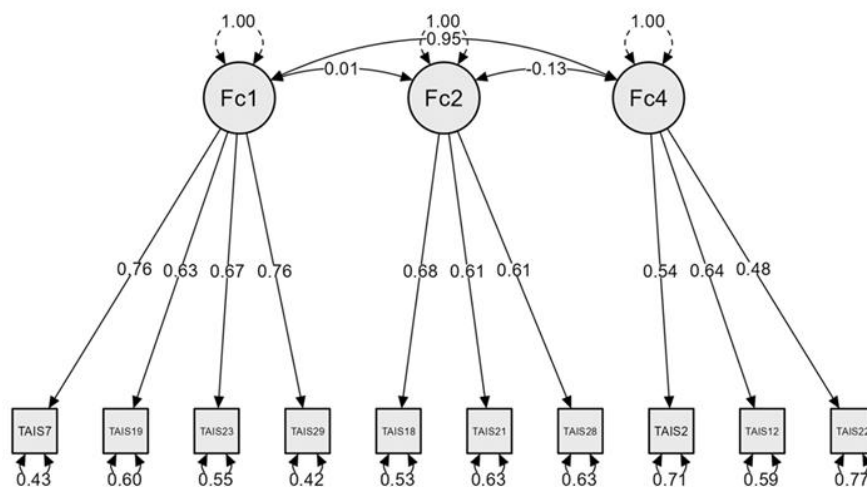
Chi-Square Test ( $\chi^2/df$ )	Goodness of Fit Index (GFI)	Comparative Fit Index (CFI)	Tucker-Lewis Index (TLI)	Bentler-Bonett Normed Fit Index (NFI)	Root Mean Square Error of Approximation (RMSEA)
2.43	0.995	0.956	0.938	0.929	0.059

Accordingly, out of the four a priori, only three latent factors of the “Attitude towards inclusion” section of the TAIS (i.e., factors 1, 2, and 4)

were retained after performing the confirmatory factor analysis (CFA). The model plot of these retained three factors of the “*Attitude towards inclusion*” section of the TAIS is presented in Figure 1. The standardized factor loadings and error terms are provided.

### Figure 1.

The CFA model plot of the three latent factors of the “*Attitude towards inclusion*” of the Teacher Attitude to Inclusion Scale for Filipino Pre-Service Teachers (TAIS-FPT)



To provide short and concise labels for the subscales of factors of the Teacher Attitude to Inclusion Scale for Filipino Pre-Service Teachers (TAIS-FPT), factor 1, *Problems of inclusion of SEN children in mainstream classes*, was renamed as *Problems*. While factor 2, *Social benefits for all of the inclusion of SEN pupils in mainstream classes*, and factor 4, *Implications for addressing the needs of children with SEN*, were changed to *Social benefits* and *Addressing the needs*, respectively.

### Between-Network Construct Validity

Between-network construct validation examines the scales' relationship to different yet logically and theoretically related constructs by performing either correlation or regression. The results of the correlations between the study variables are presented in Table 3, including other variables, particularly the subscales of the TSES (i.e., *Efficacy in Student Engagement*, *Efficacy in Instructional Strategies*, and *Efficacy in Classroom Management*) that are utilized to establish the external validity of the “*Attitude towards inclusion*” section of the TAIS.

**Table 3.***Correlation Among Study Variables*

Variable	1	2	3	4	5	6
<b>Within Network</b>						
1. Problems	—					
2. Social benefits	0.006	—				
3. Addressing the needs	0.606 ***	0.086	—			
<b>Between-Network</b>						
4. Efficacy in Student Engagement	0.310 ***	0.069	0.219 ***	—		
5. Efficacy in Instructional Strategies	0.283 ***	0.080	0.179 ***	0.826 ***	—	
6. Efficacy in Classroom Management	0.314 ***	0.072	0.208 ***	0.837 ***	0.836 ***	—

$N = 417$ ; \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$

These results of the correlations indicated that the “*Attitude towards inclusion*” section of the TAIS Factor 1: *Problems* ( $r = .28$  to  $.32$ ,  $p < .001$ ) and the “*Attitude towards inclusion*” section of the TAIS Factor 4: *Addressing the needs* ( $r = .18$  to  $.22$ ,  $p < .001$ ) were observed to be significantly positively correlated with all of the subscales of the TSES namely: *Efficacy in Student Engagement*, *Efficacy in Instructional Strategies*, and *Efficacy in Classroom Management*. Hence, the hypothesized positive relationships between the subscales of the “*Attitude towards inclusion*” section of the *Teacher Attitude to Inclusion Scale* (TAIS) and the *Teachers’ Sense of Efficacy Scale* (TSES) were supported in this study. Although Factor 2: *Social benefits*, did not correlate significantly with all the subscales of the TSES, the results of these correlations were still considered in the positive direction.

These correlations suggest that pre-service teachers with positive attitudes toward inclusive education believe they can confidently motivate every student in their learning, manage even the most challenging classroom well, and utilize different learning instructions depending on the need (Tschannen-Moran & Hoy, 2001). This is like the results of Wilson, Woolfson, and Durkin’s (2019) study; Their study revealed that teachers with a positive view of these students had greater self-confidence and were more likely to use inclusive teaching practices. Inclusive teaching practices ensure that all students can learn and participate equally, regardless of their abilities.

These results are also in line with the theory of planned behavior of Ajzen & Fishbein (2005, as cited in Urton, Wilbert, & Hennemann, 2014), which proposes that the behavioral intentions of a person are shaped by their attitude towards the behavior that may serve as predictors of their actions (Urton, Wilbert, & Hennemann, 2014; Yada et al., 2022). With regard to self-efficacy, Bandura's social-cognitive theory (1997) suggests that a person's belief in their ability to achieve a goal based on their abilities is influenced by their self-efficacy (Yada et al., 2022). Urton, Wilbert, and Hennemann (2014) asserted that self-efficacy plays an important role in planning, carrying out actions, and handling challenging tasks. This is also related to the idea of the self-enhancement model by Caslyn and Kenny (1977, as cited in Nieva, 2022), wherein individuals with high self-efficacy tend to take on more significant challenges, put in more effort, and persist longer in completing tasks and reaching goals. The body of research has shown that teachers with high self-efficacy are more favorable toward educational reforms and implementing new guidelines (Avramidis, Toulia, Tsihouridis, & Strogilos, 2019; Hernandez, Hueck, & Charley, 2016; Urton, Wilbert, & Hennemann, 2014; Weisel & Dror, 2006). This may also include implementing inclusive education.

In essence, these results corroborate the research findings of Avramidis, Toulia, Tsihouridis, and Strogilos (2019); Hernandez, Hueck, and Charley (2016); Saloviita, (2020); Urton, Wilbert, and Hennemann (2014); Weisel and Dror (2006); and Wilson, Woolfson, and Durkin's (2019) that teachers who have a positive attitude towards inclusive have also had a high teacher's sense of self-efficacy. Therefore, teachers who hold positive attitudes toward students with disabilities and have high self-efficacy are more likely to create an inclusive and supportive learning environment for all students, including students with special needs.

## **Conclusion and Recommendation**

The "*Attitude towards inclusion*" section of the *Teacher Attitude to Inclusion Scale for Filipino Pre-Service Teachers* (TAIS-FPT) has been ascertained to have sound psychometric properties, indicating that it is a valid and reliable tool for measuring the attitudes of Filipino pre-service teachers toward inclusive education. The results of within-network construct validation suggest the acceptability of the reduced 10-item of the "*Attitude towards inclusion*" of the *Teacher Attitude to Inclusion Scale* among Filipino pre-service teachers instead of the original 20-item (please refer to Appendix for the complete final list of dimensions and items of the "*Attitude towards inclusion*" section Teacher Attitude to Inclusion Scale for



Filipino Pre-Service Teacher (TAIS-FPT). Based on confirmatory factor analysis, the data fit the three-factor structure of the “*Attitude towards inclusion*” of the TAIS instead of the original four-factor a priori structure, suggesting within-network construct validity. In contrast, the relationships between the “*Attitude towards inclusion*” of the TAIS-FPT subscales and other theoretically relevant constructs (i.e., *teacher’s efficacy in student engagement, instructional strategies, and classroom management*) were positively correlated, which indicates between-network construct validity of the “*Attitude towards inclusion*” section of the TAIS-FPT.

The following are the limitations of the study. First, the data were collected using self-reports, which is prone to common method variance issues. According to Tehseen, Ramayah, and Sajilan (2017), Common method variance is a type of bias that can occur in research when the same method or source is used to collect data for multiple variables in a study. This can lead to overestimating or underestimating the relationships between the studied variables. They may be influenced by the method or source used for data collection rather than the true underlying relationships between the variables. Second, although English is a second language for Filipinos, the scales would be better if translated into Filipino since this is the participants' mother tongue. Lastly, the other components or sections of the *Teacher Attitude to Inclusion Scale* (TAIS), specifically Section 1: *Demographics*, Section 2: *Willingness to Include*, and Section 3: *Adequacy of support*, were not included in this study because these sections serve a different function and Section 4: *Attitude towards inclusion* is considered a stand-alone measure.

Since this scale has been found to be psychometrically sound for Filipino pre-service teachers, it is recommended, therefore, to consider extending this study by examining the construct validity of this scale with the in-service teachers. This could provide a more comprehensive understanding of how the scale performs with a broader range of educators and could also help to identify any areas for improvement or modification of the scale.

Additionally, this validated measure of the attitude toward inclusion can serve as a springboard to future research. According to Tuncay and Kizilaslan (2022), there are various demographic factors that are linked to teachers’ attitudes toward inclusive education, and these include a.) teacher’s characteristics, b.) student-related factors, and c.) environmental factors. It will be an interesting future line of research to explore the measurement invariances of this scale regarding these identified

demographic factors. One way of carrying this out is by determining the relationships between the components or sections of the *Teacher Attitude to Inclusion Scale* (TAIS): Section 1: *Demographics*, Section 2: *Willingness to Include*, and Section 3: *Adequacy of support*.

In addition, it is suggested that the scale be translated into Filipino, the participant's native language. This would ensure that the participants fully understand the questions and provide accurate responses. Furthermore, a comparison of the fit between the English and Filipino versions of the scale could be included in future research to determine if any differences exist between the two versions.

It is noteworthy to point out that the very purpose of creating a psychometrically sound measure of the teacher's attitude towards inclusion is only a first step toward the effort to "design and implement supportive approaches that enable all teachers to work effectively with a diverse range of learners within mainstream settings" (Monsen, Ewing, & Boyle, 2015, p. 70).

The results of this present research have important implications not only with the measurement and assessment issues but also with the education policy and practice. Teachers who have a positive attitude toward students with disabilities and high self-efficacy are more likely to create inclusive classrooms where all students, including children with special needs, can learn and thrive. This, in turn, can lead to better academic and social outcomes for students with special needs and their regular peers. On the other hand, negative attitudes towards students with disabilities and low self-efficacy can lead to exclusion, discrimination, and a lack of support, which can negatively affect their academic and social development.

Therefore, pre-service teachers would require training programs and professional development initiatives to build teachers' attitudes aside from knowledge and skills toward inclusive education, which promotes positive attitudes toward students with disabilities. By doing so, we can help ensure that all students receive a quality education that meets their needs and prepares them for success in life. For this reason, it would require consolidated efforts from the program implementers, users, beneficiaries, and other stakeholders to ensure the success of inclusive education in the Philippine education system, after all.

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## Appendix

### **Dimensions and Item Questions of the Final Form “Attitudes towards inclusion” of the Teacher Attitude to Inclusion Scale for Filipino Pre-Service Teachers (TAIS-FPT)**

#### *Factor 1. Problems*

1. It is difficult to maintain order in a normal classroom that contains an SEN child.
2. It is likely that an SEN child will exhibit behavior problems in a normal classroom setting.
3. Inclusion is likely to harm the emotional development of the SEN child.
4. SEN children are likely to create confusion in the regular classroom.

#### *Factor 2. Social Benefits*

5. Including the SEN child in the regular classroom promotes his or her social independence.
6. The inclusion of SEN students can be beneficial for non-SEN students.
7. SEN students should be given every opportunity to function in the regular classroom setting where possible.

#### *Factor 3. Addressing the Needs*

8. The needs of SEN students can best be served through special, separate classes.
9. Most SEN children do not make an adequate attempt to complete their assignments.
10. SEN children need to be told exactly what to do and how to do it.