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## EDUCATIONAL ASSESSMENT & EVALUATION | RESEARCH ARTICLE

# Attitudinal instrument development: Assessing cognitive, affective, and behavioral domains of teacher attitudes toward teaching all students

Jess L. Gregory<sup>1\*</sup> and Lori A. Noto<sup>2</sup>

**Abstract:** Despite their entree into the physical space of general education classrooms and the expected instruction of the core academic standards, students with disabilities may still be excluded. Successful inclusion requires a commitment at district, school and classroom level. The attitude of the general education teacher toward the inclusion of students with disabilities is a critical component in the success of inclusionary efforts. The attitudes toward teaching all students (ATTAS-mm) instrument are a nine-item scale with strong reliability and validity that measures educator attitudes. The three subscales: believing all students can succeed in general education classrooms (cognitive), developing personal and professional relationships (affective), and creating an accepting environment for all students to learn (behavioral) explain nearly 80% of the variance in scores. The unstandardized Cronbach alpha for the entire ATTAS-mm scale was 0.83. The three subscales also demonstrated acceptable reliability values (Cognitive, 0.72; Affective, 0.93; Behavioral, 0.84). With strong internal reliability and validity established through a panel of experts and alignment with cognitive psychology literature, the ATTAS-mm was determined to be a valid and reliable instrument for measuring the attitudes toward teaching all students.



Jess L. Gregory & Lori A. Noto

### ABOUT THE AUTHORS

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### PUBLIC INTEREST STATEMENT

This study provides information on a survey that can be used to evaluate teacher attitudes toward educating students with disabilities in a general education setting. Educational professionals are expected to be able to successfully provide inclusive educational services for students with disabilities. The reality of this expectation is complicated and is impacted by many factors, the survey can provide a starting point for determining teacher attitudes and then planning for professional development and other types of supports to improve practices. The survey also has utility for higher education to evaluate teacher preparation programs and for school leaders to improve the inclusion of students with disabilities in their schools and districts.

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### **1. Introduction**

The education of students with disabilities in general education classrooms has increased over the years since the inception of inclusion practices (Lipsky & Gardner, 1989; Sailor et al., 1986; Skirtic, 1991; Stainback & Stainback, 1990; Thousand & Villa, 1990). An increase in inclusive opportunities over the past decade can be credited to No Child Left Behind Act (2001) and amendments to Individuals with Disabilities Education Improvement Act (2004). A commitment to inclusion has been solidified with every revision to the original special education legislation put into place in 1975 (PL 94-142, 1975). However, the legal expectation that inclusive services will be offered to students with disabilities is not a guarantee that such services will be provided nor is it a guarantee that the services provided would be successful. Additionally, some of the standardization expected through No Child Left Behind Act (2001) and more recently the Common Core State Standards (Common Core State Standards Initiative, 2010) and Every Student Succeeds Act (2015) create challenges for the inclusion of students with disabilities since successful inclusion is directly influenced by flexibility and individualization of services.

Inclusive education is typically defined as a student with a disability receiving his/her education in a general education classroom with the general education teacher as the student's primary instructor. Additional supports will be provided as needed within the context of the general education setting by a paraprofessional or special education teacher (Mastropieri & Scruggs, 2010; Villa & Thousand, 2003, 2017). These supports are specifically designated for the students. There is no codified expectation that the in-service general education teacher will have the training or support needed for successful inclusive education.

All professionals do not embrace the provision of services for students with disabilities in inclusive settings (Moore, 2011; Volonino & Zigmond, 2007; Zigmond, Kloo, & Volonino, 2009), however, it has become the expected practice in order to ensure that students with disabilities are being exposed to the core curriculum to enable them to meet the benchmarks set forth in the standardized tests that they are expected to take with their classmates (Common Core State Standards Initiative, 2010; Every Student Succeeds Act, 2015; No Child Left Behind Act, 2001). General education teachers are the professionals best prepared to instruct students with disabilities, with the appropriate supports, to develop the knowledge and skills expected from the core curriculum. Teacher preparation programs face increased scrutiny regarding whether their pre-service teachers and graduates are prepared to meet the needs of increasingly diverse classrooms.

Differentiated instruction (Tomlinson, 1999, 2003), in conjunction with inclusive education, has provided increased opportunities for students with disabilities to learn in the general education classroom. The characteristics of a differentiated classroom require that educators will: teach students where each student is developmentally and academically as opposed to where the curriculum says they should be; provide deep learning opportunities that hold all students to high standards; use a variety of teaching strategies and materials to reach all students; and become educational partners with students who are expected to take ownership and advocacy over their own learning. All of these expectations promote the education of all students, including those students with disabilities in a general education classroom.

Despite their entree into the physical space of general education classrooms and the expected instruction of the core academic standards, students with disabilities may still be excluded. "Students may not receive the education they need because of teacher or community expectations, school

culture, mismatch between a teacher's teaching style and a student's learning style, inappropriate curriculum, lackluster instruction, or inadequate resources" (Kluth, Straut, & Biklen, 2003, p. vii). Successful inclusion requires a commitment at district, school and classroom level (Villa & Thousand, 2003). Educational leaders need to support the necessary components in order for general educators to provide an inclusive education. Opportunities for professional development, planning time, and appropriate resources are all necessary building blocks that assist the general educator. Once these are in place, the classroom educator can focus his/her energy on welcoming students with disabilities into the classroom on an educational and social level.

The legal expectations stemming from Individuals with Disabilities Education Improvement Act (2004), No Child Left Behind Act (2001) and Every Student Succeeds Act (2015) that inclusive services will be offered to students with disabilities is not a guarantee that such services will be provided nor is it a guarantee that the services provided are successful. The general educator is a pivotal element in the inclusion of students with disabilities. The attitudes of the general education teacher toward the inclusion of students with disabilities are a critical component. Attitudes are defined by Fishbein and Ajzen (1972) as having three components; cognitive, affective and behavioral. The analysis of these attitudes can provide a structure for pre-service and in-service education to general education teachers. General education teachers need to have an accepting and willing attitude toward the instruction of all learners (Mintz, 2007).

There are several factors that educators must possess in order to have positive attitudes toward inclusion of students with disabilities (Silverman, 2007). Educators must believe that students with disabilities can achieve their very best and that they can learn. Second, educators need to have a strong sense of self-efficacy for teaching students with disabilities. Educators with high self-efficacy are more effective at differentiating instruction. Lastly, general and special education educators need to recognize each other as equals.

## 2. Rationale

### 2.1. Rationale for developing the original teacher attitudes toward inclusion scale

Inclusion of students with disabilities continues to be the expected appropriate means for educating students with disabilities as outlined in Individuals with Disabilities Education Improvement Act (2004), No Child Left Behind Act (2001) and Every Student Succeeds Act (2015), while, the impact of the educators' attitudes is often discounted. There is satisfaction to be found in the fact that students with disabilities are sitting in general education classrooms with their typically developing peers. However, their presence in the room does not guarantee that the educator is comfortable with the responsibility of their education nor does it mean that they are truly members of the classroom. The educator is the driving force for their success, how he/she perceives his/her ability to teach students with disabilities and his/her overarching attitudes about inclusion will determine the success of the student with disabilities (Wilczenski, 1992).

Measuring the attitudes of educators provides information on the areas where educators feel inadequate so that professional development, as well as educator and leader preparation can be more focused. Local education agencies and institutions of higher education will be able to use this knowledge to support the development of educators. The provision of focused professional development and instruction will make available more meaningful development because it will be differentiated to meet the needs of the individual educators. Additionally, the information can be used to mentor new educators assisting the mentor to direct support to the areas where the mentee needs support. The building leader or district leader will also benefit from this information using it to drive school or district improvement of student learning.

There have been a number of inclusion attitudinal scales developed over the past 20 years (e.g. Antonak & Larrivee, 1995; Gething, 1991; Sideridis & Chandler, 1995), which served as a starting point for the evaluation of educator attitudes. There have been very few new scales developed over

**Table 1. Instruments to evaluate teacher attitudes toward inclusion published in the last 15 years**

Instrument	Author	Sample includes teachers		Scope
		Pre-service	In-service	
STATIC	Hastings and Oakford (2003)	Yes	No	Cognitive, affective, and behavioral
SACIE	Loreman and Earle (2007)	No	No	Cognitive and affective
ISPS	McLeskey, Waldron, and So (2001)	No	No	Affective
CIES	Sharma and Desai (2003)	Yes	No	Cognitive, affective, and behavioral
MATIES	Mahat (2008)	No	Yes	Cognitive, affective, and behavioral

the past 15 years (see Table 1), which has led the authors to develop the Teacher Attitudes Toward Inclusion Scale (TATIS). Many of the scales or studies were done abroad demonstrating the desire to assess educators’ attitudes toward inclusion is not isolated to the United States, but also is global. Using the triadic model of attitudes (Fishbein & Ajzen, 1972), an instrument would need to measure all three domains of attitude, cognitive, affective, and behavioral. An additional characteristic that was determined to be relevant is the generalizability of the instrument to both pre-service (teacher candidates before they are in the field) and in-service (currently working in the field) teachers.

The Teacher Attitudes Toward Inclusion Scale (TATIS; Cullen, Gregory, & Noto, 2010), was developed to evaluate the attitudes of pre-service and in-service educators’ toward the inclusion of students with disabilities. The TATIS measures the three domains of attitude: (1) cognitive: teacher perceptions of students with mild to moderate disabilities; (2) affective: beliefs about the efficacy of inclusion, and (3) behavioral: perceptions of professional roles and functions. It has been noted that there is a limited amount of research focusing on educator attitudes’ toward students with disabilities in inclusive settings. The TATIS was used in research around the world, but in a regional conference session discussing Structural Equation Modeling (SEM) a possible threat to the instrument was discovered. In order to apply SEM to data, the instrument used to collect these data must be completely forward scored (Finney, 2010). While reverse scoring is useful for slowing cognitive processing, it can artificially create a factor if only the items for one subscale are reverse scored; it can cause all those items to load together on a single factor due to reverse score bias rather than because they represent an actual distinct factor (Finney, 2010; Netemeyer, Bearden, & Sharma, 2003; Weijters, Baumgartner, & Schillewaert, 2013). Earlier results had demonstrated a higher variance in the scores on the reverse scored factor that was measuring the affective domain of attitude, this higher variance was consistent with the literature on measuring the affective dimension of attitude. After the session discussing SEM, there was another possible explanation for the higher variance, reverse score bias. To investigate this, the TATIS was revised to be fully positively scored and renamed the TATIS-p (Gregory & Noto, 2011). The pilot data showed that the TATIS-p did not load onto the three factors as the literature and prior data collection with the TATIS supported, and so, the second factor of the TATIS was determined to be a result of reverse score bias rather than a measure of the affective dimension of attitude.

### 3. Methodology

#### 3.1. Method

Based on the Fishbein and Ajzen (1972) model of attitude, a successful instrument that measures attitudes would need to load onto the three different components of attitude: cognitive, affective, and behavioral. Initial items were brainstormed and those items were categorized into three pools by the researchers independently to assess whether there was agreement in the labeling of the categories for the initial pilot. A small initial pilot ( $n = 40$ ) of p-12, public school educators was

conducted to narrow the number of items from the full list of categorized items. The full list of items was used in this initial pilot using the SurveyMonkey, online survey tool. This initial pilot required participants to respond to demographic questions and the Likert scaled items.

From these larger pools of items, 27 items were selected by the researchers based on the highest factor loadings to be a part of the final pilot instrument. The items consisted of positively worded statements to which respondents selected their level of agreement (five point Likert scale, Strongly Agree, Agree, Neutral, Disagree, and Strongly Disagree). Lubke and Muthén (2004) suggest that as long as the assumptions of normality, skewness and other requirements are met, Likert scale data can be used to determine factors as long as they draw from a homogeneous population. The validity of the items was ensured through their alignment with the literature, narrow focus on the content, and vetted by a small panel of experts. To establish the properties of the tool pre-service general educators at a private, New England university was invited to participate in the second pilot ( $n = 211$ ) in the spring semester of 2011. These educators completed demographic questions in addition to the 27 possible items.

The data collected were designed to permit factor analyses and item selection to create a scale that would reliably measure the three facets of attitudes with the fewest number of items. If this pilot was to be a success, there would need to be at least three items for each of the cognitive, affective, and behavioral dimensions of attitude (Fabrigar, Wegener, MacCallum, & Strahan, 1999; Russell, 2002). Additionally, the entire instrument and each of the subscales would need to be reliable, as measured by Cronbach's alpha ( $\alpha = 0.8$ , good;  $\alpha = 0.6$ , acceptable) for internal reliability.

## 4. Findings

### 4.1. Results

Of the invited sample ( $n = 211$ ), 22.7% responded ( $n = 48$ ). This is lower than the 32.52% average response rate for an online survey and slightly lower than the median response rate (26.45%; Hamilton, 2009). The low response rate could have resulted from the invitation being e-mailed exclusively to the pre-service educators' official university e-mail accounts, rather than personal e-mail accounts. After the pilot was begun, one item was determined to have grammatically poor wording (by the researchers) and would be excluded from the analyses, so the pilot evaluation was conducted on 26 items.

Statistical analyses were run using SPSS. The data were analyzed in three stages. The first step was to conduct an initial factor analysis. Using 0.7 initial correlations or greater allowed the researchers to identify which of the 26 items most strongly measured one of the three components, cognitive, affective, or behavioral. Step two involved determining which of the selected items were most representative of the three constructs, and finally the third step determined how much of the variance could be accounted for by the whole scale and the internal reliability of the scale. A varimax, orthogonal rotation was used to maximize the economy of the scale, focusing on the independence of the factors, and using a correlational technique.

In the initial factor analysis, only items with initial correlations of 0.7 or greater were retained for step 2 (Table 2). This resulted in the retention of 12 items (bold).

These 12 items were subjected to Principal Component Analysis and the solution orthogonally rotated to identify the strongest loading items for each of the three factors in the pattern matrix (Table 3). Items labeled 9, 10 and 12 in Table 3 appeared to cross load on components one and two, so they were eliminated. This resulted in a nine-item instrument with three items identified for each component of attitude.

With nine items identified, the factor analyses were run a third time, and the 9 remaining items in the scale explained nearly 80% of the variance (Tables 4 and 5). The first subscale (Component 3)

**Table 2. Initial factor analysis, varimax rotated component matrix**

Item	Component		
	1	2	3
1. All students with mild to moderate disabilities should be educated in regular classrooms with nonhandicapped peers to the fullest extent possible	0.763	-0.081	0.409
2. Most or all regular classrooms can be modified to meet the needs of students with mild to moderate disabilities	0.629	0.135	0.494
3. Students with mild to moderate disabilities can be trusted with responsibilities in the classroom	0.745	0.255	0.358
4. I would like people to think that I can create a welcoming classroom environment for students with mild to moderate disabilities	0.817	0.281	0.106
5. I have a high regard for teachers who use a variety of data (e.g. health, academic, behavioral, etc.) to make instructional decisions	0.319	0.567	0.246
6. It is seldom necessary to remove students with mild to moderate disabilities from regular classrooms in order to meet their educational needs	0.234	0.001	0.614
7. Most or all separate classrooms that exclusively serve students with mild to moderate disabilities should be eliminated	-0.109	-0.032	0.721
8. Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms	0.317	0.159	0.707
9. Inclusion is a more efficient model for educating students with mild to moderate disabilities because it reduces transition time (i.e. the time required to move from one setting to another)	0.212	0.089	0.367
10. Students with mild to moderate disabilities should be taught in regular classes with nondisabled students because they will not require too much of the teacher's time	-0.219	0.187	0.772
11. I believe including students with mild/moderate disabilities in regular classroom is effective because they can learn the academic skills necessary for success	0.220	0.681	0.422
12. I would like to be mentored by a teacher who models effective differentiated instruction	0.445	0.790	0.060
13. I want to emulate teachers who know how to design appropriate academic interventions	0.392	0.822	0.122
14. Students with mild to moderate disabilities have the ability to contribute meaningfully to their educational program	0.778	0.418	0.121
15. I would like my mentor to believe that I work well with students with mild to moderate disabilities	0.747	0.492	-0.040
16. I believe including students with mild/moderate disabilities in the regular classrooms is effective because they can learn the social skills necessary for success	0.274	0.736	0.403
17. I find that general education teachers often succeed with students with mild to moderate disabilities, when they try their best	0.065	0.605	0.369
18. I would welcome the opportunity to team teach as a model for meeting the needs of students with mild/moderate disabilities in regular classrooms	0.589	0.453	0.119
19. All students benefit from team teaching; that is, the pairing of a general and a special education teacher in the same classroom	-0.010	0.689	0.215
20. The responsibility for educating students with mild/moderate disabilities in regular classrooms should be shared between the general and special education teachers	0.362	0.505	0.082
21. Students with mild to moderate disabilities can be equal contributors in group work	0.599	0.329	0.227
22. Wording in pilot survey was grammatically poor	-	-	-
23. I believe that students with mild and moderate disabilities benefit from active learning	0.731	0.475	-0.006
24. I would like people to think that I can use flexible grouping to ensure that students with mild to moderate disabilities are effectively participating in lessons	0.605	0.650	-0.006
25. I respect teachers who find ways to create a homogeneous class	0.144	0.318	-0.106
26. I admire teachers who successfully design behavioral interventions	0.583	0.593	0.035
27. I would welcome the opportunity to participate in a consultant teacher model (i.e. regular collaborative meetings between special and general education teachers to share ideas, methods, and materials) as a means of addressing the needs of students with mild/moderate disabilities in regular classrooms	0.681	0.455	0.256

**Table 3. Initial factor analysis, varimax rotated component matrix**

Item	Component		
	1	2	3
1. All students with mild to moderate disabilities should be educated in regular classrooms with nonhandicapped peers to the fullest extent possible	0.050	<b>0.858</b>	0.187
2. Students with mild to moderate disabilities can be trusted with responsibilities in the classroom	0.315	<b>0.790</b>	0.236
3. I would like people to think that I can create a welcoming classroom environment for students with mild to moderate disabilities	0.425	<b>0.758</b>	-0.052
4. Most or all separate classrooms that exclusively serve students with mild to moderate disabilities should be eliminated	-0.086	0.066	<b>0.809</b>
5. Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms	0.230	0.482	<b>0.684</b>
6. Students with mild to moderate disabilities should be taught in regular classes with nondisabled students because they will not require too much of the teacher's time	0.115	-0.126	<b>0.848</b>
7. I would like to be mentored by a teacher who models effective differentiated instruction	<b>0.920</b>	0.276	0.039
8. I want to emulate teachers who know how to design appropriate academic interventions	<b>0.951</b>	0.208	0.123
9. Students with mild to moderate disabilities have the ability to contribute meaningfully to their educational program	0.626	0.646	0.036
10. I would like my mentor to believe that I work well with students with mild to moderate disabilities	0.699	0.584	-0.131
11. I believe including students with mild/moderate disabilities in the regular classroom is effective because they can learn the social skills necessary for success	<b>0.770</b>	0.209	0.320
12. I believe that students with mild and moderate disabilities benefit from active learning	0.555	0.661	-0.076

**Table 4. ATTAS-mm, varimax rotated component matrix**

Item	Component		
	1	2	3
1. All students with mild to moderate disabilities should be educated in regular classrooms with nonhandicapped peers to the fullest extent possible	0.076	<b>0.897</b>	0.112
2. Students with mild to moderate disabilities can be trusted with responsibilities in the classroom	0.341	<b>0.801</b>	0.171
3. I would like people to think that I can create a welcoming classroom environment for students with mild to moderate disabilities	0.431	<b>0.747</b>	-0.112
4. Most or all separate classrooms that exclusively serve students with mild to moderate disabilities should be eliminated	-0.074	0.084	<b>0.836</b>
5. Students with mild to moderate disabilities can be more effectively educated in regular classrooms as opposed to special education classrooms	0.261	0.474	<b>0.639</b>
6. Students with mild to moderate disabilities should be taught in regular classes with nondisabled students because they will not require too much of the teacher's time	0.147	-0.076	<b>0.849</b>
7. I would like to be mentored by a teacher who models effective differentiated instruction	<b>0.919</b>	0.265	-0.006
8. I want to emulate teachers who know how to design appropriate academic interventions	<b>0.952</b>	0.199	0.079
9. I believe including students with mild/moderate disabilities in the regular classrooms is effective because they can learn the social skills necessary for success	<b>0.818</b>	0.266	0.235

**Table 5. ATTAS-mm, total variance explained**

Component	Rotation sums of squared loadings		
	Total	% of variance	Cumulative %
1	2.822	31.353	31.353
2	2.421	26.905	58.258
3	1.943	21.591	79.849

**Table 6. ATTAS-mm summary item statistics**

Statistics for scale	N		Mean		Variance	SD
	9		34.67		24.227	4.922
	Mean	Minimum	Maximum	Range	Max/Min	Variance
Item Means	3.852	2.583	4.500	1.917	1.742	0.528
Item Variances	0.699	0.424	1.142	0.718	2.695	0.039

measures the cognitive dimension of attitude. This scale was labeled, *believing all students can succeed in general education classrooms*. It consists of items 4, 5, and 6 in the pilot, and in the final instrument is listed first. The second subscale (Component 1), titled *developing personal and professional relationships*, measures the affective dimension through items 7, 8, and 9 in the pilot and in the final version of the instrument is listed as the middle items. The third subscale (Component 2) assesses the behavioral aspect of attitude with items 1, 2, and 3 of the pilot and the last items on the final instrument. This subscale is titled *creating an accepting environment for all students to learn*. Together the three subscales measure an individual’s three elements of attitude.

With the scale defined, the reliability coefficients for the full scale and the subscales were determined (Gliem & Gliem, 2003). The unstandardized Cronbach alpha for the entire Attitudes of Teachers Toward Teaching All Students—mild to moderate (ATTAS-mm) scale was calculated, using means variance, to be 0.833 (Table 6). The three subscales also demonstrated acceptable reliability values (Table 7). The subscale that measured the affective portion of attitude had the highest reliability (0.928). This is inconsistent with the earlier TATIS results (Noto & Gregory, 2011) and with literature on measuring the affective domain of attitude (Fishbein & Ajzen, 1972). The current emphasis on improving school climate and building inclusive school cultures might contribute to the higher than expected reliability in the measure of this domain. Pre-service and in-service educators and administrators are expected to explicitly address issues surrounding personal and professional relationships. This attention to relationships would necessitate respondents clarifying how they feel and therefore increase the consistency of responses in this domain.

With strong internal reliability and validity established through a panel of experts and alignment with cognitive psychology literature, the ATTAS-mm met the criteria set forth in the design of the pilot. The three elements that combine to create attitude were each measured with three items, and

**Table 7. Reliability analysis for ATTAS-mm full scale and subscales**

Component	Title	Cronbach Alpha
Full scale	Attitudes towards teaching all students	0.833
Subscale 1 Cognitive	Believing all students can succeed in general education classrooms	0.720
Subscale 2 Affective	Developing personal and professional relationships	0.928
Subscale 3 Behavioral	Creating an accepting environment for all students to learn	0.837

the reliability of the scale was greater than the  $\alpha = 0.6$  level that was defined as acceptable. Most of the subscales and the full instrument exceeded the 0.8 value for alpha that indicates good internal reliability. Overall, the ATTAS-mm was determined to be a valid and reliable instrument for measuring the attitudes toward teaching students with mild to moderate disabilities.

## 5. Discussion

Educational professionals are expected to provide inclusive services however, some general educators do not believe they have the skills; this uncertainty will impact their efficacy. Even with the best intentions, they may not be meeting the legal obligations to the students with disabilities. Educators who are confident in their skills will more effectively provide an inclusive education to all students. They will have the skills to differentiate instruction as needed, and to collaborate successfully with other professionals.

There has been evidence that educator attitudes are related to student success (Van Laarhoven, Munk, Lynch, Bosma, & Rouse, 2007). Even as early as, Barton (1992) identified that there was a need for a reliable and valid instrument to measure the attitudes of educators toward the inclusion of students with disabilities. Using an assessment to determine pre-service and in-service areas of strength and need will assist in developing the knowledge, skills, and dispositions necessary for successful inclusion. The educational implications of using data derived from a reliable and valid instrument like the ATTAS-mm are wide-ranging.

Colleges and Universities may use the ATTAS-mm as a tool to help evaluate program effectiveness in the preparation of teacher or leader candidates. The change in student scores could be used as a measure of growth during an entire program, a sequence of core or elective courses or even a single semester course. These data can provide a means to tailor the instruction of pre-service educators ultimately leading to better meeting the needs of all students. When instructors in higher education are aware of the areas that pre-service educators, both teachers and leaders, feel deficient they will be able to adjust their instruction to address these needs. Therefore, by assessing attitudes we make improving attitudes a focus of the program and a more likely outcome.

Local educational agencies, whether they are p-12 school districts or other education interested agencies may wish to measure teacher attitudes toward teaching all students using the ATTAS-mm to inform policy decisions and in developing professional goals and priority setting. Districts and schools may use the data from the ATTAS-mm to identify educator needs and differentiate the professional development opportunities for existing faculty and staff (Gregory, McCoy, Baker, & Fedigan, 2016). Because the success of an inclusion effort greatly influences the success of students with disabilities, ensuring more positive attitudes will create a situation conducive for greater student success. Students with disabilities who are more successful will have greater educational opportunities, which could lead to more students with disabilities meeting the expected benchmarks of the core curriculum.

School leaders may use the ATTAS-mm to assess change in in-service teacher attitudes toward teaching all students periodically. This would be a way to determine whether school-level policies or programs were positively influencing teacher attitudes and possibly affecting student outcomes. This would be of particular use when implementing curricular changes arising from new state of federal assessments, curricular standards, or other programs designed to improve student academic achievement.

Finally, an individual may wish to use the ATTAS-mm to measure how their own life experiences may be influencing their attitudes toward teaching all students. This reflective practice, or praxis, is the pinnacle of professionalism. Educators, pre-service or in-service, at the teacher or formal leadership level, may want to periodically assess their own attitudes. The individual results on the ATTAS-mm can be converted to percentile rank (Gregory & Noto, 2012).

While the authors contend that the ATTAS-mm offers institutions of higher education and p-12 school leaders a valuable tool, limitations exist. The tool was developed with a homogeneous population. This limits the generalizability of the findings, secondly, the tool itself relies on self-reporting. Any self report measure is limited by the respondents' self-awareness and calibration. As there were no benefits associated with participation, and no identifiers, it is less likely that the educators surveyed manipulated responses to impress or please the researchers. The topic of inclusion of students with mild to moderate disabilities is inherently laden with judgment and socially normative role expectations, educators may have subconsciously chosen more socially desirable responses, indicating the response they believe an educator ought to provide.

The role-based expectations conflating this work stem from ego research (Cuddy, Glick, & Beninger, 2011), where the educator judges themselves against what he or she believes are the necessary competencies to be effective in his or her profession. How educators perceive the profession changes over time and therefore interpretations require care based on the educational and political environments that exist at the time of data collection. The awareness of the responding educator to the trends in education is not measured by this tool, but could influence how he or she interprets the items. The demographic questions do ask for the number of years experience and educator has, but that question does not adequately measure the level of engagement in professional learning or other influencing experiences that may further differentiate between educators.

An additional limitation to this work stems from the tight alignment to the triadic model of attitudes. While the authors contend this model best represents the attitudes of educators in schools, other models of attitude and different constructs, such as beliefs, exist. The ATTAS-mm only measures the domains of attitude as conceptualized by Fishbein and Ajzen; it is not generalizable to other operationalizations of attitude or other constructs.

Even with the limitations, the applications of a valid and reliable instrument such as the ATTAS-mm speak to the complicated nature of student academic achievement in a general education classroom. It would be hubris to assert that a single tool can improve the educational outcomes of students with mild to moderate disabilities in the regular education classroom, but because we know that teacher attitudes influence the success of inclusive efforts, measuring teacher attitudes toward teaching all students is certainly a tool that educators, at all levels, can use to build conditions that will foster academic achievement for all children.

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