A FACTOR ANALYTIC VALIDATION STUDY OF THE SCALE OF TEACHERS' ATTITUDES TOWARDS INCLUSIVE CLASSROOMS (STATIC)

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General and special education teachers (N = 125) completed the Scale of Teachers' Attitudes towards Inclusive Classrooms (STATIC). The internal consistency of the instrument was strong with an alpha of .89. The measure demonstrated excellent test-retest reliability (r = .99) and a dependent t-test was non-significant, indicating mean group temporal stability. An exploratory factor analysis resulted in a five-factor scale accounting for 61.6% of the variance versus the original four factors identified by the author of the instrument. Future research and potential use of the instrument are discussed.

Introduction

Over the past twenty years, research on teacher attitudes towards inclusion of students with disabilities has continuously yielded similar outcomes; the majority of teachers have been found to have a tendency to demonstrate a negative attitude towards inclusion if they perceive they have not been provided with the appropriate support and training to meet the needs of students with disabilities (Hammond & Ingalls, 2003; Hunter, 2004; McHatton & McCray, 2007). The inclusion debate continues across the world. The term "inclusion" has many definitions in the professional literature that may cause teachers to feel unprepared and resistant to the idea. With a dramatic increase in the number of students with disabilities included in general education classrooms, educators are left with the challenge to find ways to meet the needs of these students (McHatton & McCray, 2007; McLeskey & Waldron, 2002; Shade & Stewart, 2001; Valle & Connor, 2011). Thus, general education teachers may be resistant to inclusion because of the lack of support and unpreparedness they perceive in supporting the diverse needs of students with disabilities (Hammond & Ingalls, 2003; Hunter, 1999a,b; Roach, 1995). Furthermore, given the current atmosphere of high stakes testing, teachers may feel pressured to teach to the "standard" to increase test scores (Valle & Connor, 2011) which may, in turn, lead school personnel to overlook the need to support students with disabilities.

To continue to educate all students regardless of their abilities in the least restrictive environment (LRE), a major change in teacher attitudes, expectations, and educational practices may be necessary (Cook, 2001; McLeskey & Waldron, 2002; Shade & Stewart, 2001). Therefore, an examination of teachers' personal beliefs, fears, and

concerns is critical to the outcomes of inclusive classrooms (Causton-Theoharis, Theoharis, Bull, Cosier, & Dempf-Aldrich, 2010; Cook, 2001; McHatton & McCray, 2007; McLeskey & Waldron, 2002; Shade & Stewart, 2001; Valle & Connor, 2011). If inclusion is to be successful, special and general education teachers must be prepared to clearly define and accept new roles and responsibilities (Horne & Timmons, 2009; McLeskey & Waldron, 2002). Moreover, significant changes may be required to restructure school organizations and teacher training to enhance inclusive practices (Fullan, 2007; Gersten, Vaughn, Deshler, & Schiller, 1997; McLeskey & Waldron, 2002; Spirnthall, Reiman, & Thies-Spirnthall, 1996).

Given these important issues surrounding inclusion, there is a need for research on teachers' attitudes toward inclusion practices. The purpose of this study was to examine and validate the Scale of Teachers' Attitudes towards Inclusive Classrooms (STATIC). The STATIC instrument has been used in research studies to examine teacher attitudes towards students with disabilities, and teachers' beliefs with regards to inclusion of students with disabilities in the general education classroom (Cochran, 1998; Mock & Kauffman, 2002; Nishimura, 2012). Although the STATIC instrument has been used to measure teacher attitudes, an external validation study of the instrument has yet to be conducted.

Method

Participants

General and Special Education K-6 teachers (N = 125) were recruited from six elementary schools in a district in Orange County, California, accounting for 81% of the teachers in the district. Of the 125 participants, 80 were general education teachers and 45 were special education teachers. Approximately 73.5% identified their race/ethnicity as European American, 12.8% Asian American, 9.4% Hispanic/Latino American, .9% African American, and 3.4% Other ethnicities. The participants' levels of education were: Bachelor's degree (44.4%), Master's degree (49.6%), Educational Specialist degree (5.1%), and PhD. in Education (.9%). Age and sex/gender data were not collected.

The majority of the teachers had more than 10 years of teaching experience (n = 81). The average class size in the school district was reported as 31-40 students in upper grades (4-6) and 21-30 in primary grades (K-3). Of the 125 respondents, 40.2% had at least 2-3 students with disabilities included in their classroom, 17.1% had more than 5 students, and 12% had 1 student included in their classroom. The identified disability categories of the students included in the classroom were learning disabilities (44.4%), autism (13.7%), emotional disturbances (3.4%), and health and physical disabilities (4.3%).

Procedures

Approval was obtained from the University Institutional Review Board before the study commenced. Permission to use the STATIC was obtained from its author prior to the distribution of the survey. Teachers were recruited at a weekly staff meeting. Of the 155 teachers in the district, 125 teachers completed the survey the first day that it was administered. The survey was administered in a group format at each of the six elementary schools via paper and pencil during the weekly staff meeting and then eight weeks later. Administration time was approximately 10 minutes. A participant's survey was deemed to be satisfactory if they completed at least 90% of the items. All of the participants' surveys met this criterion.

Measure

The Scale of Teacher's Attitudes towards Inclusive Classrooms (STATIC; Cochran, 1999) consists of 20 items that were designed to measure a teacher's attitude towards students with special needs in the general education classroom. The response format is a 5-point Likert-type scale ranging from "Strongly Disagree" to "Strongly

Agree," with five reverse scored items. According to the author of the STATIC, the sum score of the twenty items is indicative of teachers' attitudes towards inclusion (Cochran, 1998). Higher scores indicate positive attitudes, whereas lower scores indicate negative attitudes towards inclusion. There are no specific cut off scores. The STATIC instrument is displayed in Appendix A.

The validation study of the STATIC instrument included 516 general and special education teachers. Specific details on the demographics and numbers of general and special education teachers were not provided. Internal consistency for the total scale was high, with an alpha level of .89. Cochran (1998) conducted a confirmatory factor analysis of the STATIC instrument and identified and named four factors for the scale: Factor 1: Advantages and Disadvantages of Inclusive Education; Factor 2: Professional Issues Regarding Inclusive Education; Factor 3: Philosophical Issues Regarding Inclusive Education; and Factor 4: Logistical Concerns of Inclusive Education. Cronbach's alpha reliability coefficients were calculated for each factor. Factor one evidenced a reliability coefficient of .87, Factor two .83, Factor three .57, and Factor four .62. Factor one and two were found to have good internal consistency. The internal consistencies for factor three and four were low (Mertens, 2010).

Results

The statistical analyses were conducted using the Statistical Package for Social Sciences (SPSS) version 15 (SPSS, 2005). The results are presented for a reliability analysis and an exploratory factor analysis (EFA).

Reliability Analysis

The internal consistency estimate was examined with Cronbach's alpha on the 20-item scale. The Cronbach's is appropriate to use with multiple response, Likert-type data. The results indicated that the internal consistency on the full scale matched that of Cochran's analysis and was high and adequate for research purposes (.89).

Test-retest (temporal) reliability analysis was conducted after eight weeks with the entire sample. A two-tailed Pearson's correlation revealed that the scores from Time 1 to Time 2 evidenced high temporal stability (r = .99). In addition, a dependent t-test was conducted to assess whether mean levels remained consistent between Time 1 and 2. The results revealed there was no significant difference (t = -.436, p = .664), which indicated the means remained temporally stable.

Exploratory Factor Analysis

An exploratory factor analysis (EFA) was conducted on the 20-item instrument using SPSS. Items were retained on a factor if loadings were .40 or greater according to generally accepted recommendations for item retention (Muijs, 2010). Using a varimax orthogonal rotation in the EFA, five factors were identified in comparison to the original four as identified by Cochran (1998). Factors were retained if the eigenvalue was 1 or greater. Table 1 demonstrates a comparison of Cochran's results with the current results for item loadings and total variance accounted for in each factor.

Table 1. Exploratory Factor Analysis Results for the STATIC

	STATIC Item # Loading	Sugita & Busse Loading	Difference
FACTOR 1	7 (.67)	5 (.64)	11,14 (Cochran)
	11 (.60)	7 (.52)	5,20 (Sugita & Busse)
	12 (.55)	12 (.73)	
	13 (.78)	13 (.69)	
	14 (.71)	15 (.55)	

	15 (.70)	20 (.57)	
Factor Variance	**20.2%**	**33.1%**	
FACTOR 2	1 (.74)	1 (.68)	
	2 (.74)	-	2 (Cochran)
	3 (.74)	3 (.74)	
	4 (.75)	4 (.74)	
	9 (.47)	9 (.66)	
Factor Variance	**16.4 %**	**8.7%**	
FACTOR 3	5 (.61)	6 (.53)	5,16 (Cochran)
	6 (.64)	8 (.63)	8,11,17 (Sugita & Busse)
	10 (.65)	10 (.81)	
	16 (.48)	11 (.62)	
		17 (.50)	
Factor Variance	**11.1%**	**7.6%**	
FACTOR 4	8 (.66)	2 (.61)	8,17 (Cochran)
	17 (.74)	18 (.77)	2 (Sugita & Busse)
	18 (.45)	19 (.75)	
	19 (.64)		
Factor Variance	**8.1%**	**7.1%**	
FACTOR 5	N/A	14 (.51)	14,16 (Sugita & Busse)
		16 (.84)	
Factor Variance		**5.1 %**	
Total Variance	**55.8%**	**61.6%**	

The results indicated general congruence across both studies on many of the items (see Table 1 for comparisons) although different factor loadings were found in the current study for several items (see Appendix A for scale items). For example, Cochran found items 11 (Students with special needs learn social skills that are modeled by regular education students) and 14 (Self-esteem of children with special needs is increased when included in the regular education classroom) loaded on Factor 1 which he titled: Advantages and Disadvantages of Inclusive Education. In the current study, neither of these items loaded on the factor, rather items 5 (Although children differ intellectually, physically, and psychologically, I believe that all children can learn in most environments) and 20 (Students with special needs should be included in regular education classrooms) loaded on Factor 1. Item 11 loaded on our Factor 3 and item 20 loaded on Factor 1. In comparison, Item 5 loaded on Cochran's Factor 3 (Philosophical Issues Regarding Inclusive Education) and Item 20 loaded on Factor 1.

Of particular note, the current analysis revealed a fifth factor compared to the original four factor structure found by Cochran. In the current factor structure, the fifth factor is comprised of Items 14 (Self-esteem of children with special needs is increased when included in the regular education classroom; Cochran's Factor 1) and 16 (Special inservice training in teaching special needs students should be required for all regular education teachers; Cochran's Factor 4). In the current structure, Factor 1 accounted for 33.1% of the variance, indicating an upper level factor. Factor 2 accounted for 8.7% of the variance, Factor 3 7.6%, Factor 4 7.1%, and Factor 5 accounted for 5.1% of the variance. Internal consistency estimates were .810 for Factor 1, .796 for Factor 2, .751 for Factor 3, .666 for Factor 4, and .462 for Factor 5. These estimates indicate adequate internal consistency for Factors 1, 2 and 3, and low internal consistency for Factors 4 and 5.

Correlations between the factors (see Table 2) ranged from a low of .132 (Factors 4 and 5) to a high of .585 (Factors 1 and 2). These correlations indicate the factors evidenced a small to moderate amount of shared variance (from 2% to 34%) and that the factors provided unique variance to the factor structure.

Table 2. Correlations Between New Factors

Factors	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Factor 1:Beliefs in Inclusive Education	-				
Factor 2: Ability and Confidence in Working with Students with Disabilities	.585**	-			
Factor 3: Making Progress toward Inclusive Education	.538**	.506**	-		
Factor 4: Supporting Inclusive Education	.370**	.445**	.338**	-	
Factor 5: General Education Perspective on Inclusion	.428**	.358**	.395**	.132*	-

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Discussion

The results of this factor analytic validation study of the STATIC revealed that the overall general factor structure was similar between Cochran's study and the current analysis. There were, however, significant differences. The most significant difference was the addition of a fifth factor that was evidenced in the current analysis. Also, as shown in Table 1, several items loaded differently.

Factor analysis is an inexact method. The results from a factor analysis rely on a variety of decisions regarding the method chosen to examine factor structure, such as factor extraction methods (e.g., accepted item loadings and eigenvalues), rotation methods (orthogonal vs. oblique), and the factor analysis method (exploratory vs. confirmatory). Depending on the methods, different factor structures may be found for a given set of data and a given sample.

We chose certain criteria for this analysis. Specifically, we adopted an accepted approach for item loadings and included items that loaded at .4 or above in a factor, whereas others may have chosen a more liberal loading as low as .3 or a more conservative level of .5. We maintained the conventional guideline for including factors with eigenvalues of 1 or greater which resulted in the five factor structure. We also chose to use an exploratory factor analysis (EFA). The purpose of an EFA is, as the name implies, to explore a factor structure without a priori consideration. In essence, this method allows data to fall where they may whereas a confirmatory factor analysis

(CFA) is chosen when one seeks to confirm either a theoretical or previously accepted factor structure (Cochran used a CFA with orthogonal rotation). Given that there has been no other external factor validation study of the STATIC, we deemed an EFA was appropriate. Finally, we chose, as did Cochran, to use an orthogonal rotation (varimax) in our analysis. An orthogonal analysis is based on the assumption that the factors are unrelated whereas an oblique rotation method is based on the assumption that the factors are related (e.g., depression and anxiety). The small to moderate correlations we found between factors supported this choice.

Based on our analyses of the items and factor structure we have tentatively named the factors: Factor 1: Beliefs in Inclusive Education; Factor 2: Ability and Confidence in Working with Students with Disabilities; Factor 3: Making Progress toward Inclusive Education; Factor 4: Supporting Inclusive Education; Factor 5: General Education Perspective on Inclusion. Although the internal consistency estimate for Factor 5 was low, we decided to retain the factor due to its contribution to the overall variance accounted for (5.1%) and the strength of the item loadings. These factors are of course in need of external validation.

Strengths and Limitations

There are obvious strengths and limitations in our study. One strength is the use of an external sample to examine the factor structure of the STATIC. External validity is necessary to examine whether previous results can be replicated and generalized beyond a specific research finding. Another strength was the inclusion of a temporal reliability study. In our study, the entire sample completed the STATIC after 8 weeks. The resulting correlation of .99 and the non-significant dependent *t* -test indicated that, for this sample, the teachers' attitudes toward inclusion remained remarkably stable across a two-month period.

The major limitations are found in the sample. Although 125 participants perhaps provide adequate power for statistical analysis, a larger, more representative sample would have strengthened the conclusions of the results. Cochran's study was with 516 respondents – a much larger sampling (albeit geographically limited to the state of Alabama in the United States). On a related note, the participants in the current study were all from a specific school district in Southern California. The results may have been different if a more nationally or internationally representative sample had been used.

Implications for Practice and Research

The results of this study have several implications for practice and research. With regard to practice, it may be that the perceptions of teachers, particularly general education teachers, can inform practice of the specific types of issues that arise that preclude teachers from embracing inclusion in their classrooms. As noted in the literature review, general education teachers may be reluctant to work with students with disabilities due to insufficient teacher preparation and/or preconceptions about the potential of students with disabilities, or an inherent bias against inclusion.

With regard to research, several implications stem from our findings. First, more research obviously needs to be conducted on the STATIC. Researchers can extend the data to examine the factor structure of the STATIC with more representative samples. Our sample was limited to Southern California, where inclusion practices are often limited. It also would be informative to examine the use of the STATIC across areas/districts in which inclusion is more, or less, practiced. On a related note, research should be conducted with the STATIC to examine differences regarding the perceptions of inclusion between general and special education teachers, and variations of the STATIC to examine the perceptions of other stake-holders such as administrators, parents, and support personnel such as school psychologists, counselors, and social workers. School administrators in particular may have an enormous influence on inclusive practice.

Research also should be conducted to examine the content of the items on the STATIC. Specifically, an expert panel could examine the items for clarity and whether the items validly assess issues of inclusion. Research also

should be conducted to examine whether the STATIC is correlated with other measures of inclusive practices such as the Multidimensional Attitudes toward Inclusive Education Scale (MATIES; Mahat, 2007).

Conclusion

The results of this validation study indicate that the STATIC possesses strong internal consistency and temporal reliability. The factor structure of the measure is in need of further validation to validate its use. We found a five factor structure versus a four factor structure as compared to the original structure of the measure. As our examination of inclusive practice advances, we need to be aware of the perceptions of school staff regarding special education students and their needs. At the risk of overuse, "Perception is reality." Progress toward inclusion may mean altering perceptions through training and education to change the reality and to move closer to the realization of truly inclusive education. Although further validation is warranted, the STATIC appears to be a useful tool to use toward accomplishing these goals.

References

Causton-Theoharis, J., Theoharis, G., Bull, T., Cosier, M., & Dempf-Aldrich, K. (2010). Schools of promise: A school district-university partnership cenetered on inclusive school reform. *Remedial and Special Education, 30*(1), 1-14.

Cochran, H.K. (1999). *Scale of Teachers' Attitudes toward Inclusive Classrooms.* Unpublished manuscript.

Cochran, H. K. (1998). *Differences in teachers: Attitudes toward inclusive education as measured by the Scale of Teachers Attitudes Towards Inclusive Classrooms.* Paper presented at the annual meeting of the Midwestern Educational Research Association, Chicago, IL.

Cook, B. G. (2001). A comparison of teacher attitudes twoard their included students with mild and severe disabilities. *The Journal of Special Education*, *38*, 203-13.

Gersten, R., Vaughn, S., Deshler, D., & Schiller, E. (1997). What we know about using research findings: Implication for improving special education practice. *Journal of Learning Disabilities*, *30*(5), 466-476.

Fullan, M., (2007). *The new meaning of educational change*. New York, NY: Teachers College Press.

Hammond, H., & Ingalls, L. (2003). Teachers' attitudes toward inclusion: Survey results from elementary school teachers in three southwestern rural school districts. *Rural Special Education Quarterly*, *22*(2), 24-30.

Horne, P. E., & Timmons, V. (2009). Making it work: Teachers' perspectives on inclusion. *International Journal of Inclusive Education*, *13*(3), 273-286.

Hunter, D. (1999b). Inclusion of students with severe disabilities at the elementary school level. In M. J. Coutinho & A. C. Repp (Eds.). *Inclusion: The integration of sutdents with disabilities* (pp. 278-311). Belmont, CA: Wadsworth Publishing.

Hunter, D. (1999a). Systematic change: The transition to inclusion systems. In M. J. Coutinho &A. C. Repp (Eds.). *Inclusion: The integration of students with disabilities* (pp. 136-151). Belmont, CA: Wadsworth Publishing.

Hunter, D. (2004, Nov.). Revisiting the fears and concerns of inclusive schooling: Strategies for changing attitudes. P*aper presented at the 2004 Annual Conference for The Association for Persons with Severe Handicaps (TASH).* Reno, NV.

McHatton, P. A., & McCray, E. D. (2007). Inclination toward inclusion: Perceptions of elementary and secondary education candidates. *Action in Teacher Education*, *29*(3), 25-31.

McLeskey, J., & Waldron, N. L. (2002). Professional development and inclusive schools: Reflections on effective practice. *The Teacher Educator* , 37(3), 159-172.

Mertens, D. M. (2010). *Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods.* Thousand Oaks, CA: Sage Publications.

Mock, D.R., & Kauffman, J.M. (2002). Preparing teaches for full inclusion: Is it possible? *The Teacher Educator, 37*(3), 202-215.

Muijs, D. (2010). *Doing quantitative research in education with spss.* Thousand Oaks, CA: Sage Publications.

Nishimura, T. (2012). *Effects of inclusive professional development on teacher attitudes towards students with disabilities* (Unpublished doctoral dissertation).
Chapman University, Orange, CA.
Roach, V. (1995). Supporting inclusion: Beyond the rhetoric. *Phi Delta Kappan*, *77*(4),
295-299.
Shade, R. A., & Stewart, R. (2001). General education and special education preservice
teachers' attitude toward inclusion. *Preventing School Failure*, *46*, 37-41.
Spirnthall, N. A., Reiman, A. J, Thies-Spirnthall, L. (1996). Teacher professional
development. In T. B. J. Sikula, *Handbook of reserach on teacher education: A
project of the Association of Teacher Educators* (pp. 666-703). New York, NY: Simon & Schuster MacMillan.
Valle, J. W., & Connor, D. J. (2011). *Rethinking disability: A disability studies approach to inclusive practices.* New York, NY: McGraw-Hill.