DOCUMENT RESUME

ED 426 548 EC 306 984

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TITLE Differences in Teachers' Attitudes toward Inclusive Education as Measured by the Scale of Teachers' Attitudes toward Inclusive Classrooms (STATIC).
PUB DATE 1998-10-00
NOTE 33p.; Paper presented at the Annual Meeting of the Mid-Western Educational Research Association (Chicago, IL, October 14-16, 1998).
PUB TYPE Reports - Research (143) -- Speeches/Meeting Papers (150)
EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Attitude Change; *Attitude Measures; *Disabilities; Elementary School Teachers; Elementary Secondary Education; *Inclusive Schools; Mainstreaming; Psychometrics; *Regular and Special Education Relationship; Secondary School Teachers; Special Education Teachers; *Student Placement; *Teacher Attitudes; Teacher Student Relationship; Test Validity

ABSTRACT

This study evaluated a new measure of teachers' attitudes toward students with special needs included in regular education classrooms. Approximately 516 teachers (308 regular and 186 special education) from five school districts completed the Scale of Teachers' Attitudes Toward Inclusion (STATIC). Statistical analyses suggested robust psychometric properties for the STATIC. Special education teachers scored higher on the STATIC than secondary teachers. Higher scores on the STATIC indicated more optimistic or positive attitudes toward inclusion. Implications from this large scale analysis suggest the need to: (1) examine the effects of teachers' attitudes on performance of special education students; (2) guide placement decisions for special education students; (3) screen prospective teachers prior to employment; (4) shape teacher education programs; and (5) diagnostically focus remediation on specific dimensions of attitude requiring modification. (Contains 37 references.) (DB)

Running Head: ATTITUDES TOWARD INCLUSIVE EDUCATION

Differences In Teachers' Attitudes Toward Inclusive Education As Measured By The Scale Of Teachers' Attitudes Toward Inclusive Classrooms (STATIC)

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Paper presented at the annual meeting of the Mid-western Educational Research Association, Chicago, Illinois, October 14-16, 1998.

Abstract

This study examined teachers' attitudes toward students with special needs included in regular education classrooms. Approximately 516 teachers from five school districts completed the Scale of Teachers' Attitudes Toward Inclusion (STATIC) (Cochran, 1997). Statistical analyses suggested robust psychometric properties for the STATIC. Special education teachers scored higher on the STATIC than regular education teachers and elementary teachers scored higher on the STATIC than secondary teachers. Higher scores on the STATIC indicated more optimistic or positive attitudes toward inclusion. Implications from this large scale analysis is to: (a) examine the effects of teachers' attitudes on performance of special education students; (b) guide placement decisions for special education students; (c) screen prospective teachers prior to employment; (d) shape teacher education programs; and (e) diagnostically focus remediation on specific dimensions of attitude requiring modification.

Teachers' Attitudes Toward Inclusive Education

Introduction

According to the United States Department of Education (1998) there are nearly six million students with disabilities who are served by special education services. This accounts for 12 percent of all students enrolled in public schools. The number of children with disabilities served in public schools has increased 51 percent over the last twenty years. More than 73 percent of these students are served in regular education classrooms or regular education classrooms combined with resource rooms in the regular education school building. Less than 23 percent are still being served in separate classes. Some educators have expressed that all special education students should be educated in regular education classrooms, a trend that, most recently, has been called inclusion (Sailor, 1991; Stainback & Stainback, 1984). These educators propose that students with special needs should no longer be visitors in regular education classrooms; and all special education services should be delivered in regular education classrooms instead of the more restrictive special education classrooms. Such placement of all students receiving special education services would bear a tremendous impact on everyone associated with the field of education. Administrators, teachers, students, and parents would all be forced to make major adjustments if these students are placed in regular education classrooms (Conte, 1994). In reality, inclusion means that all teachers become teachers of special education students. However, many teachers are hesitant and unwilling to make the necessary accommodations that are required for these students; they are reluctant to accept these students as well as the practice of inclusion (Geskie & Salasek, 1988; Jones & Guskin, 1984). Historically, negative attitudes have often been reflected toward disabled persons in general (Wyatt v. Stickney, 1979). Attitudes, which are

largely negative (Altman, 1981; Gottlieb, Corman, & Curci, 1984; Harth, 1977), place limitations on students with special needs and inhibit the possibility of their success (Antonak, 1994).

If all students who receive special education services are going to be educated in regular education classrooms, then teachers' attitudes are critical to their success (Barnett & Kabzems, 1992; Berryman, 1988; Darovill, 1989; Garvar Pinhas & Schmelkin, 1989; Hudson & Clunies Ross, 1984; Larrivee & Cooke, 1979). It is imperative that an accurate and psychometrically sound means of assessing teachers' attitudes be available (Antonak & Livneh, 1988) to guide the placement of children receiving special education services. Successful integration and acceptance of these students hinge on long-term changes of negative attitudes held by education professionals (Antonak & Larrivee, 1995).

Because of fanatical and sometimes militant philosophical and theoretical positions held by advocates and critics of inclusion, special education in today's society has been described by some as being in a state of flux. Hallahan and Kauffman (1994) stated that the disputes between radical integrationists and conservatives "have threatened to rip apart the field of special education" (p. 46). On one hand are radical proponents of inclusion that would like to eradicate the continuum of services, which has been a possibility for less than a generation, a continuum that provides for each child to have an education implemented in the least restrictive environment with related services. Gartner and Lipsky (1991) wrote that the "continuum of placements, and . . . cascade of services were progressive when developed but do not promote full inclusion" (p. 52, emphasis in original). On the other hand, some educators and parents are satisfied with the present delivery system and continuum of services and would like to work to improve it to better meet the needs

of children (Hallahan & Kauffman, 1994; Mims, 1994; Russell, 1994; Spann & Patterson, 1994; Tate-Brown, Wortham, & Olenchak, 1994).

If the movement toward inclusion continues, and teachers' attitudes are a significant variable related to the success of students with disabilities, additional research is warranted. Potential areas for research are: (a) examining differences in teachers' attitudes toward students with special needs, (b) identifying relationships between teachers' attitudes to students with special needs and teachers' attitudes toward disabled persons in general, (c) predicting the success of students with special needs from teachers' attitudes, (d) desensitizing regular education teachers with negative attitudes toward students with special needs, (e) promoting positive attitudes toward these students through inservice training, and (f) screening prospective teachers' for the presence of positive attitudes toward students with special needs.

The purpose of this study was to develop a psychometrically sound instrument to examine the extent that teachers' attitudes toward students with special needs could be measured. This 20 item Likert type instrument was called the Scale of Teachers' Attitudes Toward Inclusion (STATIC) (Cochran, 1997). The STATIC was used to examine several differences in teachers' attitudes toward students with special needs. The goal of the researcher was to contribute to the extant body of literature and future studies that may ultimately lead to interventions to bring about more positive attitudes of teachers toward students with special needs.

Several research questions emerged from the problem associated with attitudes toward the inclusion of children with special needs in regular education classrooms. In general: 1.) To what extent can teachers' attitudes toward students with special needs included in regular education classrooms be measured? This question is addressed specifically by examining the psychometric

properties of the Scale of Teachers' Attitudes Toward Inclusion (STATIC) as represented by the three following questions:

a. Do items on the STATIC adequately measure the theoretical construct of "attitude toward inclusion" of special education children in regular education classrooms?

b. What are the underlying dimensions of the attitude scale on the STATIC?

c. What are the difficulty levels of the items on the STATIC?

Another area of interest was: 2.) Are there differences in teachers' attitudes toward students with special needs? This has been addressed by the following three representative questions:

a. Do regular education teachers and special education teachers score differently on the theoretical construct "attitude toward inclusion" as measured by the STATIC?

b. Do elementary education teachers and secondary education teachers score differently on the theoretical construct "attitude toward inclusion" as measured by the STATIC?

c. Do teachers differ in their "attitudes toward inclusion" as measured by the STATIC due to the number of years experience in the field of education?

Method

Subjects. Teachers selected to participate in this study were from 32 schools in five school districts of a southeastern state (see Tables 1 and 2). Among the 32 schools, 18 were elementary schools, six were middle schools, five were high schools, and two schools were for children with special needs. Ten (31%) schools were classified as being located in urban areas, six (20%) in suburban areas, 11 (33%) in communities, and five (16%) in rural areas.

Procedures. Supervisors of research in the local school districts were contacted personally and by mail to describe the study and ask for their approval to conduct the study. One thousand

four hundred forty teachers were asked to participate in the study. All teachers in each of the 32 schools received in their school mail box a description of the study, informed consent form for participation in research, a computer scanable sheet, and the STATIC. Demographic composition of the sample was determined by the natural proportion of regular and special educators, elementary and secondary educators, educational level, gender, and racial origin found in the schools.

The response rate was calculated at 36% or 516 respondents. Teachers were categorized as follows: 261 (51%) elementary school teachers, 233 (45%) secondary teachers; 186 (36%) were special education teachers, and 308 (60%) regular education teachers. Twenty-two (4%) did not indicate their teaching assignment. Sixty-three (12%) teachers were male, 321 (62%) were female, and 132 (26%) did not report gender. Racial composition may be summarized as 433 (84%) white, 48 (9%) black, and 35 (7%) from other ethnic origins. Mean experience for the teachers was six to 10 years with 54% reporting experience in excess of 10 years. Educational attainments reported by teachers were that 184 (36%) held bachelor degrees, 266 (52%) master degrees, 32 (6%) specialist degrees, 10 (2%) doctoral degrees, and 21 (4%) did not report their educational level. Average class size was 21 to 30 students with 190 (37%) of the teachers reporting more than five students with special needs in their classes. Types of special needs represented in their classes were described as 346 (67%) students with learning differences, 61 (12%) with behavioral differences, 25 (5%) with health or physical differences, and 84 (16%) with no special needs or not reporting. Also, teachers were asked if they had a child with special needs living in their home; 51 (10%) reported that they did.

Results

Reliability studies on the STATIC consistently indicate a Cronbach alpha reliability coefficient of .89 held constant for the total group as well as for individual groups of regular and special education teachers, and elementary and secondary teachers. Item-to-total correlations range from .26 to .70 with a mean of .51, standard deviation of .11, and a standard error of measurement of ±0.04.

A confirmatory principal component factor analysis was performed with a varimax rotation. The Kaiser rule (1960) was followed which is not to consider factors with eigenvalues less than 1.00. Eigenvalues were found to drop below 1.00 at factor five. Simple structure was found at a four factor solution that accounted for 55.65 percent of the variance (see Table 3). Cronbach alpha reliability coefficients were calculated for each factor. Reliability for factor one was found to be at .87, factor two at .83, factor three at .57, and factor four at .62. Upon examination of the factor loadings and common characteristics of each item, the factors were named "Advantages and Disadvantages of Inclusive Education, Professional Issues Regarding Inclusive Education. Philosophical Issues Regarding Inclusive Education, and Logistical Concerns of Inclusive Education" (see Table 4).

A one parameter Rasch model rating scale analysis was performed on the total sample as well as for special and regular education teachers individually. Differences between the positioning of items and persons for all teachers, for special education teachers alone, and for regular education teachers alone were negligible. Item difficulties for the three groups ranged from -1.56 to 1.15 (see Table 5). The near normal distribution of item logits and person abilities indicated the items defined the theoretical construct of "attitude toward inclusion" relatively well

(see figure 1). Differences in logit values of .25 or greater were found between regular and special education teachers on six items. These items addressed the teachers' beliefs about academic progress being possible for all children and their ability to handle mild to moderate behavioral problems. Special education teachers found three items easier than regular education teachers (see Figures 2 and 3). Not surprisingly, these items addressed teachers' perceived training, and anxiety level when teaching students with special needs. The additional training of special education teachers is also reflected in the ability estimates. Ability estimates indicate a greater number of special education teachers in the high ability category than regular education teachers.

A one-way ANOVA and F test of independent means was performed for teachers' scores on the STATIC with the assignment variable and the experience variable. The assignment variable delineates regular education teachers, special education teachers, elementary education teachers, and secondary education teachers. The experience variable categorized teachers into five groups based upon the number of years experience they have had in the teaching profession. Significant main effects ($F = 12.21, p \leq .0001$,) have been explored using the Tukey HSD post hoc multiple comparison tests for simple effects. Significant differences were found between special and regular education teachers in both elementary and secondary settings. Significant differences were also found between special education teachers in elementary settings and regular education teachers in secondary settings (see Tables 6 and 7). Significant main effects were also found ($F = 4.18$) at the $p \leq .0025$ level of significance. These were explored using the Tukey HSD Post hoc multiple comparisons test for simple effects. Significant differences were found between first year teachers and teachers with four or more years of experience (see Tables 8 and 9).

Discussion

Numerous studies have demonstrated that many teachers are hesitant and unwilling to make the necessary accommodations and changes required for students with special needs to be educated in regular education classrooms (Geskie & Salasek, 1988; Jones & Guskin, 1984). Such negative attitudes reflect attitudes historically taken by many toward disabled persons in general (Wyatt v. Stickney, 1972). Without radical changes, the limitations that will inherently be placed on students with special needs will inhibit successful implementation (Antonak, 1994). Thus, teachers' attitudes are critical, not only to successful inclusive education, but to the success of individuals with special needs (Barnett & Kabzems, 1992; Berryman, 1988; Darovill, 1989; Garvar Pinhas & Schmelkin, 1989; Hudson & Clunies Ross, 1984; Larrivee & Cooke, 1979).

As the trend to educate students with special needs in regular education classrooms continues, it is necessary to have psychometrically sound means of assessing teachers' attitudes toward inclusion (Antonak & Livneh, 1988). The purpose of this study was to fulfill this need by developing a psychometrically sound instrument to examine the extent that teachers' attitudes toward students with special needs could be measured. Since successful integration and acceptance of every student means that all teachers become teachers of special education students, the ultimate goal of the researcher was for this study to contribute to the extant body of knowledge and to future studies that may ultimately lead to interventions in preservice and inservice teachers education to bring about more positive attitudes toward students with special needs included in regular education classrooms.

Antonak and Livneh (1988) indicated that an instrument to measure teachers' attitudes toward inclusive education should be developed for experienced educators. Subjects for this study adequately meet this recommendation with more than half of the sample having greater than ten years experience. Findings from this study may be considered representative of teachers from the geographical area studied. A balance of urban, suburban, community, and rural schools were included in the study; this means that the study is generalizable to a large area of the southeastern region. Also, the number of special versus regular education teachers and elementary versus secondary education teachers was well proportioned.

Using the total score from the STATIC as an index for the dependent variable and the demographic data for teachers' assignment as the independent variable, a one-way ANOVA indicated significant main effects ($F = p \leq .0001$). Contrary to the findings of Garvar-Pinhas and Schmelkin (1989), Tukey's post hoc multiple comparisons test revealed significantly higher scores for special education teachers than for regular education teachers. These differences are supported by the findings of Morris and McCauley (1977), and Pearman et al., (1992).

Using the total score from the STATIC as an index for the dependent variable and the demographic data for teachers' experience, a one-way ANOVA indicated significant main effects ($F = 4.18, p \leq .0025$) which means there is a difference. Tukey's multiple comparisons test suggested significantly higher scores and more positive attitudes for first year teachers than for teachers with four to five years, six to ten years, and more than ten years experience. Closer examination revealed that there were no differences that could be attributed to the special education group; the difference was within the regular education group. First year regular education teachers scored significantly higher on the STATIC than did teachers with four or more

years of service. However, it is not uncommon for beginning teachers to be idealistic, possibly explaining the higher scores.

Based on these data, special education teachers score higher on the STATIC and have more positive attitudes toward inclusive education than do regular education teachers. Also, elementary education teachers score higher on the STATIC and have more positive attitudes toward inclusive education than do secondary education teachers. The higher score on the STATIC indicates special education teachers and elementary education teachers are more optimistic or positive in their attitudes toward inclusion than their counterparts. This gap, however, is somewhat greater between special and regular educators than between elementary and secondary educators.

Another notable difference is that first year teachers in general and first year regular education teachers specifically are more optimistic about inclusive education than are teachers with more years experience. One explanation of this may be the beginning of an attitudinal trend reflecting changes in teacher education programs and philosophies regarding inclusive education. A second explanation of these differences may be that the differences may be between the ideal and the practical that may only be acquired through experience. Still another may be a Ward, Center, and Bochner (1994) found, experienced teachers could be reacting negatively to the nature and type of disability of the student.

Conclusion

Data indicate that it is possible to measure teachers' attitudes toward inclusion as defined by the STATIC. This study provides sufficient evidence to warrant the use of this instrument for the purpose of measuring teachers' attitudes. Further investigation is warranted in: (a) broader

sampling to insure a more accurate reflection of state and/or national norms, (b) additional validity studies with other quality instruments measuring similar constructs, (c) additional item response to explore why certain items on the STATIC were found difficult for teachers to answer, (d) additional item construction to yield item calibrations indicative of easier and more difficult items, (e) alternate forms of the STATIC that are more specific with regard to various disabilities or items that require three responses for mild, moderate, and severe disabilities to yield more valuable data, (f) the development of self-rating scales of perceived ability to teach in an inclusive environment to isolate specific areas of professional development needed by teachers, (g) adaptations in teacher education programs to strengthen areas considered most difficult by teachers regarding inclusive education, (h) the STATIC being piloted for use as a diagnostic instrument with inservice teachers to identify needs for additional training, (i) the STATIC being piloted for use as a screening instrument for prospective teachers in school systems practicing inclusive education, (j) the STATIC being piloted for use as a diagnostic instrument with preservice and inservice teachers to identify areas of teacher education programs that need evaluation or revision, (k) the STATIC being used as the basis to develop an instrument to measure regular and special education students' attitudes toward inclusion, (l) studies using the STATIC with student performance measures to investigate relationships between regular education teachers' attitudes toward inclusion and the performance of students with special needs included in their classrooms, (m) the STATIC being used to control for teachers' attitudes in future inclusion studies, (n) a subscale analysis of the STATIC being conducted to establish the usefulness of each subscale for diagnostic purposes, and (o) collecting IRT studies to compare teachers' level of education and years experience for potential relationships.

Until now, there have been few district-wide studies on inclusion (Neary, Halvorsen, Kronberg, & Kelly, 1992; Salisbury, Palombaro, & Hollowood, 1993; York & Tudidor, 1995). This study moves toward a large scale analysis by including five districts. Based on the findings of this study, there is adequate evidence to positively support the validity studies presented herein and to pursue the use of the STATIC to: (a) examine the effects of teachers' attitudes on the performance of special education students, (b) guide in the placement decisions for special education students by placing them in a more positive and supportive environment in which to learn, (c) screen prospective teachers prior to employment for attitudes that reflect the educational philosophy and mission of the district, (d) shape teacher education programs and curriculum to better prepare teachers for inclusive educational environments, and (e) diagnostically focus remediation on specific dimensions of attitude requiring modification. Areas requiring modification may be identified from STATIC subscale scores or the difficulty level identified by the IRT studies presented in Figures 1, 2, and 3.

Since many school districts have adopted a full inclusion model with many more considering the implementation of the practice, these issues warrant attention. When considering inclusion, frequently the focus is on the child or children to be included. Seldom is the teacher's attitude examined (Hannah, 1988). As noted earlier, attitudes effect students and are significant contributors to the successful integration of students with disabilities (Barnartt & Kabzems, 1992; Berryman, 1988; Biklen, 1985; Darovill, 1989; Garvar-Pinhas & Schmelkin, 1989; Hudson & Clunies-Ross, 1984; Larrivee & Cook, 1979; Nader, 1984; Winzer, 1985). Jones (1984) called for the elimination of, not only physical barriers, but of attitudinal barriers as well. When inclusion is implemented, attitudes must change (Wolery, Werts, Caldwell, Snyder, & Lisowski,

1995). Not only must teachers be prepared cognitively, but also in the affective domain to effectively deal with the unique problems they will face.

This study reveals that there are significant differences in teachers' attitudes toward educating children with special needs in regular education classrooms. Hopefully, this will move educators toward a better understanding of teachers' attitudes toward inclusion and lead to specific interventions and strategies resulting in more positive attitudes toward educating these children.

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Table 1

Summary of the number of teachers responding

	Elementary	Secondary	Total
Special education	126	60	186
Regular education	135	173	308
Total	261	233	494

Table 2

Demographic summary of teachers responding

Variable	Total
Gender	
Male	63
Female	321
Ethnic origin	
Black	48
White	433
Other	35
Experience	
0-1 year	31
2-3 years	54
4-5 years	46
6-10 years	82
> 10 years	279
Education	
Bachelors	184
Masters	266
Specialists	32
Doctorate	10

Table 3

Principal components factor analysis: A four factor solution with varimax rotation

Factor	Sum of squared factor loadings	Proportion of variance
1	4.03	20.15
2	3.27	16.35
3	2.21	11.05
4	1.62	8.10
Total	11.13	55.65%

Note. $n = 516$ Includes 20 items

Table 4

Summary of STATIC item content by factor loading

Item	Item Content
	Factor 1: Advantages and disadvantages
7	special education children should be in special education classes
8	special education children should be in regular education classes
12	special education children learn social skills from regular education children
13	special education children have higher academic achievements when included
14	special education children have higher self-esteem when included
15	special education children hinder academic progress of regular education classes
20	achievement is difficult for special education children when included
	Factor 2: Professional Issues
1	confidence in ability
2	confidence in training
3	frustration/tolerance when teaching special education children
4	anxiety toward teaching special education children
10	problems teaching children with cognitive deficits
	Factor 3: Philosophical Issues
5	all children can learn
6	special education children can learn
11	handling behavioral problems
16	training for teaching special education students
	Factor 4: Logistical Concerns
9	accommodating the physically disabled
17	principal supportive
18	making special physical arrangements
19	materials/equipment easily acquired

Table 5

Summary of STATIC item content by item difficulty level for all teachers

Item	Item Content
	Difficult
7	special education children should be in special education classes
2	confidence in training
19	materials/equipment easily acquired
15	special education children hinder academic progress of regular education classes
20	achievement is difficult for special education children when included
13	special education children have higher academic achievements when included
	Moderate
8	special education children should be in regular education classes
4	anxiety toward teaching special education children
10	problems teaching children with cognitive deficits
14	special education children have higher self-esteem when included
1	confidence in ability
3	frustration/tolerance when teaching special education children
5	all children can learn
12	special education children learn social skills from regular education children
	Easy
9	accomodating the physically disabled
16	training for teaching special education students
17	principal supportive
18	making special physical arrangments
11	handling behavioral problems
6	special education children can learn

Note: $n = 494$

Table 6

ANOVA of teachers' STATIC scores with teachers' assignment

Source	Sum of squares	*df*	Mean square	*F*	Prob ≤ *F*
Main effects	8568.04	3	2856.02	12.21	.0001
Residual	106461.99	455	233.98		
Total	115030.04	458			

Note. $n = 494$

Table 7

Tukey HSD of STATIC means with teachers' assignment

M	Assignment	Spe-elem	Spe-sec	Reg-elem	Reg-sec
64.41	Spe-elem			**	**
66.14	Spe-sec			**	**
57.95	Reg-elem				
55.18	Reg-sec				

Note. $n = 494$ ** indicates significant difference: $\propto = .01$

Table 8

ANOVA of teachers' STATIC scores with teachers' experience

Source	Sum of squares	*df*	Mean square	*F*	Prob ≤ *F*
Main effects	4109.88	4	1027.47	4.18	.0025
Residual	112673.05	458	246.01		
Total	116782.94	462			

Note. $n = 494$

Table 9

Tukey HSD of STATIC means with teachers' years experience

M	Years	0-1	2-3	4-5	6-10	> 10
69.53	0-1			**	**	**
63.17	2-3					
58.20	4-5					
58.60	6-10					
58.50	> 10					

Note. $n = 494$ ** indicates significant difference: $\propto = .01$

Figure 1

Rasch model analysis of the STATIC with all teachers and item calibrations

Measure	Persons	Items
4.0	.#	
3.0		
	.#	
	#	
2.0	.#	
	#	
	###	
	.########	
	.#########	
1.0	############	Item7
	.############	Item2
	.###################	Item19
	.###################	Item15 Item20 Item13
	.###################	Item8 Item4 Item10
0.0	############	Item14 Item1 Item3 Item5
	.###################	Item12
	#########	Item9 Item16
	.######	Item17
	.###	Item18
-1.0	.#	Item11
		Item6
-2.0		
-3.0		
-4.0		

Note. $n = 494$ Each '#' represents 3 persons; each '.' represents 1 to 2 persons

Figure 2

Rasch model analysis of the STATIC with special education teachers and item calibrations

Measure	Persons	Items
3.0	XXXX	
	X	
	X	
	X	
2.3	XX	
	XX	
	XX	
	X	
	X	
1.5	XXXX	
	XXXXXXXXXXXX	
	XXXXXXXXXXX	
	XXXXXXX	Item7
	XXXXXXXXXXXXXXXXXX	
0.8	XXXXXXXXXXXX	Item19
	XXXXXXXXXXXXXXXXXX	Item15 Item2 Item20 Item13
	XXXXXXXXXXXXXXXXXXXX	
	XXXXXXXXXXXX	Item14
	XXXXXXXXXXXXX	Item8 Item5
0.0	XXXXX	Item10 Item1 Item4
	XXXXXXXXXXX	Item 3
	XXXXXXXX	Item12
	XXX	Item16 Item9
	XXXXXX	Item17
-0.8		Item11
	XX	Item18
	X	
		Item6
-1.5		
-2.3		
-3.0		

Note. $n = 186$ Each 'X' represents 1 person

Figure 3

Rasch model analysis of the STATIC with regular education teachers and item calibrations

Measure	Persons	Items
4.0	.#	
3.0		
	#	
	.	
	#	
2.0	##	
	##	
	.#####	
	###	
	.########	Item2
1.0	###########	Item7
	.########	Item19
	.####################	Item15 Item20 Item13
	##################	Item8 Item4 Item10
	####################	Item14 Item1
0.0	.###########	Item3
	.################	Item5
	.##########	Item12 Item9
	#######	Item16 Item17
	.######	
-1.0	####	Item18
	.	Item11
	#	
		Item6
	.	
-2.0	.	
-3.0		
-4.0		

Note. $n = 308$ Each '#' represents 2 persons; each '.' represents 1 person

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