A Scale Of Attitudes Towards The Students Of Classrooms Of Special Education In Ordinary Schools

Josué ARTILES-RODRÍGUEZ
Universidad de Las Palmas de Gran Canaria
España.
josue.artiles@ulpgc.es

Josefa RODRÍGUEZ-PULIDO
Universidad de Las Palmas de Gran Canaria
España.

Arminda ÁLAMO-BOLAÑOS
Gemma BOLAÑOS-PAZ.
Universidad de Las Palmas de Gran Canaria
España.

Abstract
Students with intellectual disabilities are increasingly present in primary and secondary schools. In schools coexist different ways of schooling to allow these people to study with students without disabilities. The importance of the instrument was to explore the attitudes of teachers working with students with intellectual disabilities in classrooms. The purpose of this research was to develop an instrument to assess teachers' perceptions and needs related to the presence of students with intellectual disabilities in a regular classroom. A total of 849 teachers from 58 schools with a mean age of 45.54 years participated. Results showed that a three-factor structure (Favourable Attitude towards Inclusion, Negative Feelings towards Inclusion, and Competence Needs) was the best solution, with appropriate reliability and validity. The scale developed in this study enables an initial diagnosis of school functioning by assessing teachers' perceptions and needs.

Keywords: *Intellectual disabilities, scale analysis, exploratory structural equation modelling, educational inclusion, teachers' attitudes.*

Introduction

In schools students with intellectual disabilities are increasingly in ordinary schools, where teachers usually work with a homogeneous group of students. Normally, 6 pupils with intellectual difficulties are educated in regular schools with a classroom for special education (CSE). This way of schooling, which is implemented in certain countries such as Iceland, Norway, Cyprus, Italy, and Spain (Carbonell, 2009), is characterized by the non discrimination between them, and tries to meet the needs of students in the most integrated way. Although they receive separate educational interventions, they also attend classes for certain subjects, in which they are at par with regular pupils, that is, with their classmates. The increase in CSEs is being used as the priority option to reduce segregation of students in special education schools (Avramidis & Kalyva, 2007; Nicolaidou, Sophocleous, & Phtiaka, 2006).

This schooling system has facilitated the access of pupils with intellectual difficulties to regular schools, where they share playtime and out-of-school activities. In addition, it has given them access to certain subjects in ordinary classrooms, with other classmates who do not have difficulties and a faculty without specific training in intellectual difficulties (Angelides & Michailidou, 2007; Carbonell, 2009).

To promote inclusion, it is necessary to explore teachers' perceptions of and beliefs about pupils with intellectual difficulties. Teachers need to see diversity in a positive way and should take initiative to make inclusive activities (Weiner, 2003). It is necessary to know the beliefs of teachers about students with disabilities to assess this trait as one of its many features (Boyle, Topping & Jindal, 2013). Therefore, assessing these variables is vital, however we do not have a scale to evaluate regular classroom teachers who have students with intellectual disabilities. This is important in regular schools that have incorporated in their structure classrooms of special education (CSE). The teachers of these centers should work with students with intellectual disabilities along with other students.

Research on this topic has taken into account certain characteristics of teachers, such as gender, training, characteristics of the difficulties, professional experience, educational stage, and ratio or the contact with pupils with difficulties.

The results for gender have been slightly inconclusive; although some studies show that women have more positive attitudes towards inclusion (Boyle, Topping, & Jindal, 2013; Eichinger, Rizzo, & Sitotnik, 1991; Thomas, 1985), others show that male teachers have more inclusive attitudes (Batsiou, Bebetsos, Panteli, & Antoniou, 2008). Others have found that the perceptions and attitudes of teachers are not related to gender (Avramidis & Norwich, 2002; Balboni & Pedrabissi, 2000; Heinman, 2001; Van Reusen, Shoho, & Barker, 2001).

Although a positive attitude towards inclusion exists, teachers are conscious of their insufficient training with regard to educating diverse students (Ferrandis, Grau, & Fortes, 2010). Consequently, if teachers are equipped with the expertise needed to work with diverse students, they will feel more competent, accept the inclusive approach more willingly, and will have a positive attitude towards working in a diverse classroom (Avramidis & Norwich, 2002; Avramidis & Kalyva, 2007; Horne & Timmons, 2009).

The educational stage has also been analysed as a variable that can determine the perception of the teachers towards inclusion. Monsen and Frederickson (2004) point out that studies comparing primary and secondary school teachers attitudes towards and beliefs about inclusion have found that, due to their initial training, primary school teachers generally show a more positive attitude towards inclusion and diversity than do secondary school teachers. Another factor that influences the perception of secondary school teachers is that at this level, there may be vast gaps in curriculum achievement between pupils. In this type of situation, the teacher is perceived as incompetent and specialists are delegated the responsibility of resolving these gaps (Moliner, Sales, Ferrández, Moliner, & Roig, 2012).

In reference to the ratio, studies have contradictory results depending on other factors like the size of the class or teachers' workload (Colmenero, 2009). The difficulties revealed by the teachers are related to pupils with more-severe difficulties and an excessive number of pupils in the classroom, which leaves them little bandwidth to attend to pupils with diverse needs (Jiménez, Díaz, & Carballo, 2005). In addition to the teacher-student ratio, a high percentage of pupils with intellectual difficulties in class generates more insecurity and stress in the teachers, which can be exacerbated if resources and support are insufficient (Talmor, Reiter, & Feigin, 2005). Nevertheless, Monsen and Frederickson (2004), after a review of the literature, stated that the teacher-student ratio of the class, despite influencing teachers' attitudes towards inclusion, is a subjective factor and is largely influenced by the characteristics of the teacher, whether the ratio is excessive, and the school's conditions and policies regarding inclusion.

Studies on previous contact with the pupils with educational needs have differing results. Teachers with experience with people with difficulties express more positive attitudes towards inclusion (Avramidis & Kalyva, 2007; Batsiou et al. 2008; Everington, Stevens & Winters, 1999). The previous contact the teachers may have had helps to generate a positive attitude towards pupils with intellectual difficulties , diversity, and the processes of inclusion (Avramidis & Kalyva, 2007; Avramidis & Norwich, 2002). The schools with more inclusive models, such as those in which these children receive schooling in the regular classroom or those regular schools with their own special education classrooms, facilitate considerable interaction between teachers and pupils with difficulties.

Nevertheless, the mere fact of worked with certain type of pupils with difficulties does not imply that the perception towards them is positive. Teachers' previous experiences influence their perception towards diversity, but teachers who have had negative experiences with pupils included in their classrooms, especially due to these pupils' behaviour, show attitudes less favourable than teachers who have had a more positive experience (Díaz, 2002).

Research has identified factors potentially associated with teachers' perceptions and attitudes, including gender, age, education level, and experience with pupils with difficulties. Although in-depth research has been conducted, it is necessary to develop a scale to better measure teachers' attitudes and perceptions.

Models and dimensions linked to teachers' attitudes

Cochran (1997) validated the Scale of Teacher's Attitudes Toward Inclusion (STATIC), a 20-item measure with four dimensions: advantages and disadvantages, professional issues, philosophical issues, and logistical problems related to the educational inclusion of the pupils with educational needs. Items are focused on equal opportunities for pupils with difficulties according to their needs. Professional issues refer to teachers' previous perceptions regarding education of pupils with difficulties. Philosophical issues consist of items related to the behaviour of the pupils with difficulties and teacher-training needs. Finally, the dimension of logistic problems pertains to the material resources required in the inclusion process, in the face of various need.

The Principals' Attitudes toward Inclusive Education (PATIE) scale developed by Bailey (2004) consists of 24 items across five factors. Questions focus on the inclusion or segregation of pupils with difficulties in regular

classrooms. The factor *teachers' workload* covers the main responsibilities of inclusive education. The *advantages and problems of the inclusion* factor assesses professional judgment regarding the fairness of inclusion. The *challenges of the inclusive education* factor focuses on the challenges that must be faced to move forward in the educational process. The *exclusion of the pupils* factor pertain to the rejection certain pupils encounter as a result of the type of difficulty they have, its severity, and their behaviour. Finally, the *need for teacher training* factor is related to the necessary and perceived preparation of professionals.

Kudláček (2007) developed the scale Attitudes Toward Inclusion of Children with Physical Difficulties in Physical Education – Revised (ATIPDPE-R). The instrument groups items in 3 factors pertaining to positive outcomes for students, negative outcomes for students, and negative outcomes for teachers. The first covers the advantages for the pupils without difficulties and promotion of tolerance. The second focuses on beliefs about deceleration and that inclusion of pupils with difficulties lowers the quality of education. The third factor pertains to teachers' perceptions regarding their professional competencies. Forlin, Earle, Loreman, and Sharma (2011), in a review of the scale Sentiments, Attitudes, and Concerns about Inclusive Education Revised (SACIE-R), identified the following factors: teachers' stance regarding inclusion, their feelings about relations with people with difficulties, students' acceptance of peers with different needs in regular classrooms, and concerns regarding the implementation of inclusive practices. This instrument was developed from a combination of three pre-existing scales, with 60 items in total, which were reduced to form a unique scale of 19 items. Those three scales were the Attitudes Towards Inclusive Education Scale (ATIES; Wilczenski, 1992), a revised version of the Interaction with Disabled Persons (IDP) scale (Forlin et al., 2001; Gething, 1991, 1994), and the Concerns about Inclusive Education Scale (CIES; Sharma & Desai, 2002). The authors conclude that the final SACIE-R consists of 15 items distributed across three factors. Factor 1 (feelings) evaluates negative emotions towards teaching pupils with disabilities, Factor 2 (attitudes) is related to positive perceptions of teaching in inclusion, and Factor 3 (worries) concerns perceptions of professional competence and need for teacher training regarding classrooms with diversity. The authors found that the instrument has adequate internal consistency; under this three-factor structure, Factors 1 and 3 contain items related to negative emotions or worries while Factor 2 contains items reflecting positive attitudes.

Purpose

We think that the development of a scale of attitudes is crucial for several reasons. The research on attitudes exposed scales are not exclusive to evaluate teachers working with students with intellectual disabilities. Cochran (1997) validated the scale of teacher attitudes towards inclusion in a general way. In this line, Bailey (2004) developed a scale to reveal attitudes towards disability but the instrument was addressed to the directors of schools. The study by Kudláček (2007) is a scale of attitudes towards the inclusion of children with physical disabilities in physical education. The characteristics of the difficulties influence the teachers' perception and their beliefs about the appropriate way of schooling.

Teachers perceive sensory or motor disabilities as minor compared to more-complex intellectual difficulties (Avramidis & Norwich, 2002). The reasons for this phenomenon stem from attitudes, teacher training, and even the need to understand the new model of educational inclusion (Praisner, 2003; López, Echeita, & Martin, 2009). This research explores the attitudes of teachers working with students with intellectual disabilities in standard classrooms.

Bearing in mind the inclusive model of schooling, in which pupils with intellectual difficulties are taught along with normal-ability classmates, by teachers with no specialized training in intellectual difficulties, it is essential to investigate the beliefs and teaching methods upon which are based the daily practice of these teachers (Roselló, 2010). Teachers' attitudes and professional beliefs determine the diversity of the faculty as for its function, establishing the way of conceiving its work in the school facing the education of the pupils (Sánchez & Pulido, 2007).

Therefore, the present study aimed to develop an instrument based on three fundamental variables: the inclusive educational system, the measurement of perceptions of the presence of pupils with intellectual difficulties in a regular classroom, and teachers' needs related to practice.

Method

Participants

This study was conducted with a sample of 849 teachers from 58 schools in Spain, with an average age of 45.54 years (SD = 8.55). Of these, 510 were employed at primary schools and 339 were employed at secondary schools. Regarding level of education, 312 had completed a degree and 452 had a certificate of advanced study. The schools

comprised a mix of urban and outlying rural public schools, with students predominantly from middle-class families. All schools have classrooms for special education (CSE).

Procedure

The school administrative authorities were contacted and given an explanation of the study purpose. They were requested for permission to distribute the questionnaires. Through collaboration with these authorities, the researchers were able to administer the instrument in 58 schools. The schools' teacher responsible for especial education received, distributed, and returned the questionnaires to the educational authorities, in agreement with the guidelines provided by the investigators.

Measures

To develop the Scale of Attitudes Towards Students with Difficulties in Classrooms of Special Education in Ordinary Schools (SAD-CSOS), a pool of 33 items was created. Response options ranged from 1 (not at all satisfied) to 5 (very satisfied). Items were developed to examine the attitudes of primary and secondary school teachers towards inclusion of pupils with difficulties in schools with special education classrooms.

This instrument is not based on a unique model, but try to integrate elements and constructs of the following scales: the ATIPDPE-R (Kudláček, 2007), PATIE (Bailey, 2004), and SACIE-R (Forlin, Earle, Loreman and Sharma, 2011). The common features of these scales are the dimensions related to positive attitudes towards inclusion, negative feelings towards the pupils with difficulties, limitations of inclusion of pupils with regard to educational stage, teachers' concerns, previous teachers' perceptions, and need for training (Avramidis & Norwich, 2002; Avramidis & Kalyva, 2007; Bailey, 2004; Forlin, Earle, Loreman & Sharma, 2011; Horne & Timmons, 2009; Kudláček, 2007; Monsen & Frederickson, 2004). The scale also incorporated items on needs related to integration of pupils with learning difficulties for specific subjects in regular school classrooms.

Data analyses

To determine the scale's factor structure, we first determined the number of factors. To do this, we employed various criteria. The first was the factors' theoretical meaning. Second, we performed a parallel analysis because relying on the criterion of retaining factors only with eigenvalues above 1, where sampling error is not taken into account, causes initial eigenvalues to tend to be greater than 1, and factors might be accepted erroneously and not because of factor variance. Parallel analysis overcomes this limitation by comparing the eigenvalues with averaged eigenvalues estimated from several correlation matrices of random variables based on the actual number of variables and subjects (Hayton, Allen, & Scarpello, 2004). Third, we examined fit indexes; however, exploratory factor analysis (EFA) tends to produce results that are difficult to replicate with confirmatory factor analysis (CFA) (Schmitt, 2011), so we employed exploratory structural equation modelling (ESEM; Asparouhov & Muthén, 2009). The main advantage of this technique is that it combines EFA and CFA, and does not require the factor loading of the items in the non-corresponding factors to be zero, leading to a more accurate calculation of the fit indexes and correlations between latent variables (Asparouhov & Muthén, 2009; Marsh et al., 2009).

With regard to the rotation method used to perform the parallel analysis, we used geomin rotation, following the recommendations of Asparouhov and Muthen (2009) for situations in which little is known about the factor structure. More specifically, we used oblique geomin rotation because in social sciences, methods involving oblique rotations show relations between factors that are closer to reality (Brown, 2006; Schmitt, 2011). We used the maximum likelihood estimation method. We used oblique geomin rotation in ESEM too, but a different estimation method. Because we used a scale with Likert-type items, the observable variables are ordinal categorical variables (Flora & Curran, 2004). Therefore, to estimate the value of the parameters and fit indexes, it is more accurate to use an estimation method that does not require multivariate normality (Schmitt, 2011). Therefore, we used the weighted least squares means and variance adjusted (WLSMV) method.

Moreover, the fact that teachers are grouped by schools violates the assumption of independence. This can inflate the value of χ^2 and underestimate standard errors (Stapleton, 2006). To overcome this, the parameters were estimated maximizing a weighted logarithmic function and the standard errors, using a *sandwich* type estimator (Muthén & Muthén, 2015). To assess model fit, we used the χ^2 test, χ^2/df ratio, root mean square error of approximation index (RMSEA) and its 90% confidence interval (CI), Tucker-Lewis index (TLI), comparative fit index (CFI), and weighted root mean square residual (WRMR).

After determining the number of factors, to avoid cross-loadings and obtain a clean structure, we discarded items with loadings that were lower than .35 and that differed by than .15 between two factors. Next, we analysed reliability by using McDonald's (1999) omega (ω) estimated from the polychoric matrix correlations, because this index, unlike Cronbach's alpha, does not require the factor loading to be the same for all the items (Yang & Green,

2010) nor the data to be continuous (Elosua & Zumbo, 2008). Similar to Cronbach's alpha, values above .80 indicate reliability. Missing values were estimated using the full information maximum likelihood method (Enders, 2010). All analyses were performed with Mplus 7.3 (Muthén & Muthén, 2015).

Results

Factor Structure

The parallel analysis, where three eigenvalues were above the upper limit of the eigenvalues estimated using the random correlation matrixes (Figure 1), showed that the three-factor structure seemed to be the most suitable. However, an examination of fit indexes from the ESEM (Table 1) indicated that the five-factor solution seemed to be the best. Nevertheless, strict compliance with this criterion usually results in the acceptance of more factors than necessary (Hayashi, Bentler, & Yuan, 2007). A four-factor structure was also identified, but there was unclear distinction between factors. The three-factor structure presented a theoretically sound option. For all the above reasons, we choose this solution. Subsequently, we eliminated items with loadings lower than .35 or those with a difference between two factors that was lower than .15. The final version consisted of three factors and 24 items.

The first factor, *Favourable Attitude towards Inclusion*, consists of 10 items; the second factor, *Negative Feelings towards Inclusion*, comprises 6 items; and the third factor, *Competence Needs*, contains 8 items. This factor structure has adequate fit: $\chi^2(845, 207) = 864.291$ ($p = .00$), RMSEA = .061 [.057, .066] CFI = .92, TLI = .89. Factor loadings range from .391 to .916 (Table 1). Finally, the coefficient (r) of the correlation between *Favourable Attitude towards Inclusion* and *Negative Feelings towards Inclusion* was -.346 [-.470, -.222], between *Negative Feelings towards Inclusion* and *Competence Needs* was .161 [.027, .294], and between *Favourable Attitude towards Inclusion* and *Competence Needs* was .347 [.168, .525].

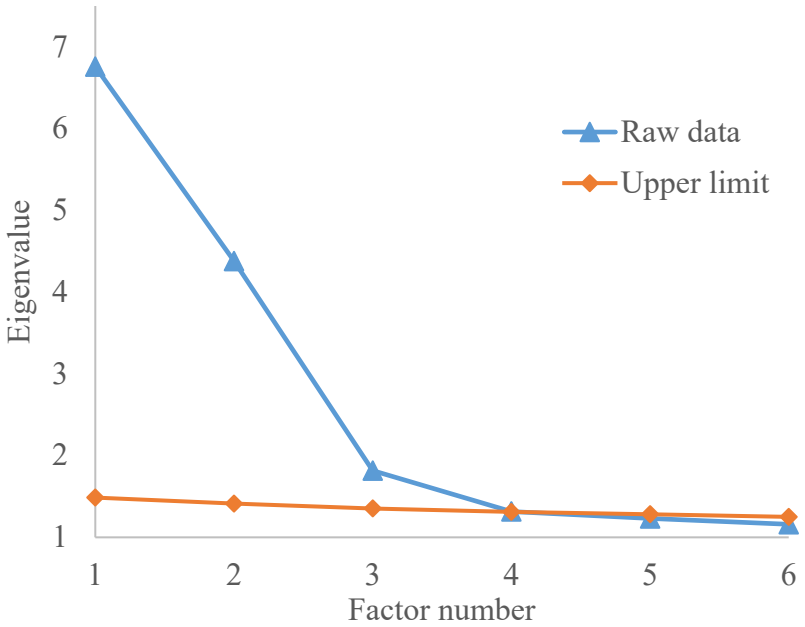

Figure 1. Parallel analysis plot

Table 1
Number of factors and fit indexes as a function of the number of factors in each extraction.

Factors	χ^2	*df*	RMSEA	90%	CFI	TLI
1	4258.846	464	.098	.096 - .101	.555	.524
2	1620.457	433	.057	.054 - .060	.861	.840
3	1154.767	403	.047	.044 - .050	.912	.891
4	813.752	374	.037	.034 - .041	.948	.932
5	673.203	346	.033	.030 0.037	.962	.945

Reliability

The results showed that the three dimensions had adequate reliability: *Favourable Attitude towards Inclusion* (ω = .839), *Negative Feelings towards Inclusion* (ω = .721), and *Competence Needs* (ω = .898).

Table 2
Factor loadings of final items

Item	**Factor 1**	Factor 2	Factor 3
I122	**.933**	-.045	-.047
I121	**.793**	.020	-.038
I3	**.665**	.001	.038
I1	**.599**	-.017	-.132
I15	**.569**	-.413	.063
I18	**.507**	-.403	-.021
I7	**.502**	.001	-.110
I6	**.500**	.033	.004
I19	**.414**	-.280	.130
I14	**.391**	-.317	.102
I5	.009	**.663**	.208
I8	.061	**.656**	.080
I20	-.171	**.600**	.197
I22	-.136	**.469**	.010
I11	-.047	**.460**	.131
I9	-.114	**.456**	.114
I242	-.013	-.694	**.916**
I241	.003	-.601	**.893**
I243	.011	-.540	**.757**
I263	.439	-.006	**.702**
I262	.348	.016	**.678**
I261	.356	-.010	**.624**
I265	.414	.033	**.615**
I264	.295	.003	**.611**

Note. Factor 1 = *Favourable Positions towards the Inclusion*. Factor 2 = *Negative Feelings towards the Inclusion*. Factor 3 = *Competence Need*.

Discussion

The aim of this project was to develop an instrument based on three fundamental variables: the inclusive educational system, the measurement of perceptions related to the presence of pupils with intellectual difficulties in regular classroom, and teachers' needs related to teaching practice. For this, we designed a pool of items and analysed the scale's factor structure and reliability. The results showed that the SAD-CSOS with three factors (*Favourable Attitude towards Inclusion*, *Negative Feelings towards Inclusion*, and *Competence Needs*) had adequate validity and reliability, in line with previous research (Bailey, 2004; Forlin, Earle, Loreman & Sharma, 2011; Forlin, Jobling & Carroll 2001; Kudláček, 2007; Sharma & Desai, 2002).

Factor 1 measures teachers' perceptions regarding the importance of inclusion of pupils with intellectual difficulties in regular schools, in accordance with the works of Forlin, Earle, Loreman, and Sharma (2011) and Kudláček (2007). It is shaped by items relative to the development of attitudes favourable to the inclusion of such pupils in the school, teachers' perceptions about other agents in the process of inclusion, and the need to include these pupils in activities in regular classrooms. Factor 2 pertains to opposition towards the inclusive process, covering feelings that limit teachers such as apprehensions, feelings of sorrow or guilt, and the perceived negative effects suffered by the school as a result of including students with intellectual difficulties (Kudláček, 2007). Factor 3 covers formative and methodological aspects that teachers consider to be necessary to be able to give an inclusive response to this type of pupils together with their classmates, in accordance with the contributions of Cochran (1997), Bailey (2004) and Forlin, Earle, Loreman and Sharma, (2011). In particular, this factor measures the needs for the transformation of the special education classroom into a regular classroom and contains items about what must be done for the regular classroom to include pupils with difficulties. This factor indicates various competencies that teachers need in order to work with pupils with intellectual difficulties (Avramidis & Kalyva, 2007; Horne & Timmons, 2009).

The information gathered has been forwarded to schools and the results are being used by school principals and administrators to implement measures to change teachers' negative perceptions about inclusion. Also, such information is helping to increase positive attitudes towards pupils with intellectual difficulties in order to establish a process for change.

This study has several limitations that warrant attention. One is that the predictive validity of the questionnaire was not analysed. In future studies, it would be interesting to examine in depth the relationship between the responses to this questionnaire and actual educational inclusion of pupils with intellectual difficulties in regular schools and/or the actual inclusion culture of the school. In addition, teachers' beliefs are not independent from context; that is, teachers of the same school often have similar or shared thoughts. For this reason, it would be interesting to analyse by means of a multilevel analysis what percentage of the variance of responses of the teachers was due to the school and what percentage belonged to the subjects. We could not perform such an analysis because of the differing number of teachers per school; in some cases, there was only one person per school. Therefore, future studies could recruit a suitable sample for performing such a multilevel analysis.

The present study provides evidence that the SAD-CSOS is a reliable and easy-to-use measure that enables an initial diagnosis of school functioning by assessing the teachers' perceptions. This instrument, from the point of view of educational administration, can reinforce decision making related to teachers' needs regarding educational inclusion of pupils with intellectual difficulties, as the results from this scale can be used to implement formative actions.

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