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# TEACHERS' ATTITUDES TOWARDS MAINSTREAMING AND THEIR PUPILS' PERCEPTIONS OF THEIR CLASSROOM LEARNING ENVIRONMENT

ABSTRACT. In spite of the widespread adoption of policies on mainstreaming, and more recently on inclusive education for children and young people with special educational needs, little is actually known about the relationship between what teachers think about such policies and the type of learning environments that they provide. In this study in New Zealand, a sample of regular primary school teachers ($N = 63$) were categorised according to 'high', 'moderate' or 'low' scores on a scale which measures their views on mainstreaming policies and practices. The pupils ($N = 1729$) of these teachers also completed a scale measuring perceptions of their classroom learning environments. Children taught by teachers who espoused highly positive attitudes towards mainstreaming were found to have significantly higher levels of classroom satisfaction and marginally lower levels of classroom friction than children taught by teachers with less positive attitudes. Implications of these findings are discussed for further research on the role of teacher attitudes in the successful inclusion of children and young people with special needs and for policies on the implementation of effective inclusive practice.

For over 30 years, mainstreaming and, more recently, inclusive educational policies for the placement of children and young people with disabilities into regular schools have been adopted in most Western countries, including New Zealand (Organisation for Economic Cooperation and Development, 1981; UNESCO, 1988, 1994). It is widely believed that teachers' attitudes are an important factor in determining the success or otherwise of such policies (Ainscow, 1993; Baker & Gottlieb, 1980; Scruggs & Mastropieri, 1996; Ward, Center & Bochner, 1994). In particular, it seems unlikely that the implementation of inclusive educational practices will be successful without the co-operation and commitment of those directly involved. While most attention was initially given to the ways in which negative teacher attitudes can present barriers to inclusion, the mechanisms through which positive teacher attitudes can facilitate inclusion are increasingly being considered. Van Reusen, Shoho and Barker (2001) hypothesise that "the attitudes and beliefs that teachers, administrators and other school personnel hold towards inclusion and the learning ability of students with disabilities may influence school learning environments and the availability of equitable educational opportunities for all students" (p. 8).

Some indirect support for a relationship between teachers' attitudes towards inclusive practices and the types of learning environments that they provide for children and young people is provided by teacher self report in qualitative studies of highly-inclusive schools. Stanovich (1999) conducted three 90-minute focus groups with six teachers in a school that was undergoing a transition from self-contained special education services to an inclusion model. These teachers, who had volunteered to examine and make public their practice in the focus group sessions, expressed a strong commitment to inclusion. One of the key themes that emerged from the analysis of their discussions was the ways in which they made decisions and choices to promote a sense of community in the school. In particular, they discussed the ways in which they selected specific teaching approaches and classroom management strategies with the aim of creating a learning environment that communicated a climate of acceptance.

Janney, Snell, Beers and Raynes (1995) carried out individual interviews with 53 teachers and administrators from ten schools where students with moderate and severe difficulties had recently been included. These staff expressed very positive attitudes towards their experience of inclusion. Again, a key finding from the analysis was that teacher attitude played a significant role in creating an accepting environment in the classroom. One of the interviewees described their perception of the process involved: "By my accepting them and talking to them just like the other students, and not making them different, the other kids will accept them like I did" (p. 436).

It appears likely that teachers who espouse very positive attitudes towards inclusive policies and practices would communicate these to their pupils. In turn, the perceptions of learning environments by pupils in such classrooms would be different from those of students in classrooms without an espoused positive ethos. The main aim of the study reported in this article was to provide a direct test of this hypothesis using well-established measures of pupil perceptions of their learning environments and teacher attitudes towards inclusion. The potential importance of work in this area is indicated by the link found in studies between characteristics of the classroom learning environment and the acceptance of pupils who have special educational needs.

In a large-scale study in the USA of special educational provisions for primary-aged children with mild mental retardation (Kaufman, Agard & Semmel, 1985), a taxonomy of classroom climates was developed and relationships between climate and a variety of social outcome measures were examined. It was found that children with mild mental retardation tended to exhibit more antisocial behaviour in classes with low 'peer harmony' levels, and that their social acceptance by peers was associated with low 'peer dislike' levels. Peer harmony and peer dislike were factors derived from an analysis of pupil happiness (assessed by classroom observation and pupil

report), a facilitating classroom climate (assessed by teacher ratings), a lack of friction or disruptiveness (assessed by observation and teacher report) and the sociometric structure of the class (assessed by total percentages of positive and negative responses on a sociometric instrument). Designed with particular purposes in mind, this measure of classroom climate has limitations. It lacks conceptual clarity with regard to the perspective from which the classroom learning environment is viewed. There is also the difficulty that children's social acceptance was obtained from the same sociometric instrument used to assess the sociometric structure of the class. The relationship between high social acceptance and low peer dislike might possibly reflect the overlapping sampling domain of these constructs.

Frederickson and Furnham (1998) used distinct measures of the classroom learning environment and peer acceptance in investigating personal and environmental influences on the acceptance in mainstream primary schools of included students who have moderate learning difficulties. A sociometric measure was used to assess peer acceptance, while student perceptions of the classroom learning environment were assessed using the My Class Inventory (MCI) (Fraser, Anderson & Walberg, 1982; Majeed, Fraser & Aldridge, 2002). The MCI assesses the five scales of Cohesiveness, Friction, Difficulty, Satisfaction and Competitiveness. Previous research has indicated that characteristics of the classroom learning environment could account for appreciable amounts of variance in a number of important learning and affective outcome measures such as examination results, normative test scores, inquiry skills, school attendance, attitudes, interest and anxiety (Fraser, 1986). On the basis of a meta-analysis of data from 12 studies in four countries, Haertel, Walberg and Haertel (1981) reported that better achievement was consistently found in classes perceived as having greater cohesiveness and satisfaction and less friction.

Frederickson and Furnham (1998) conducted discriminant analyses to identify variables that differed across groups of included students who were popular, averagely accepted and rejected as playmates by classroom peers. Classroom cohesiveness as rated by whole classes of children was identified as the most important variable in distinguishing sociometrically-popular included children. In highly-cohesive classrooms, included children were not merely tolerated but were actively accepted. A second scale of the MCI also revealed significant differences. Where peers rated the difficulty of classroom work as high, included children were less likely to be rejected. This was a somewhat counter-intuitive finding as children might be expected to find work less difficult in classes where there is good differentiation and individualisation, which are features that are likely to support included pupils. However, where these conditions do not apply and many mainstream children find the classroom work difficult, included children with learning difficulties might stand out less as different and enjoy higher

levels of social acceptance. This account of the findings was supported by the observation that included children were less likely to be rejected in classes having high peer-rated difficulty, but only as play mates and not as work mates. By contrast, cohesiveness was of key importance in promoting acceptance in both work and play contexts.

The MCI was selected as the means of assessing classroom learning environments in the present study for the following reasons. It directly assesses learner perceptions of events which Fraser (1991) argues are as likely, if not more likely, to determine learner behaviour than the actual events. It has been shown to have satisfactory internal consistency, discriminant validity and predictive validity (Chavez, 1984; Fisher & Fraser, 1981; Fraser & Fisher, 1982; Fraser et al., 1982). There is evidence of its applicability in national contexts other than the Australian context where it was developed. When Wright, Gallagher and Lombardi (1991) conducted a study in ten primary schools in England, they reported that the MCI discriminated significantly among the primary classrooms surveyed and was considered to be useful by the teachers and educational psychologists who participated in the research. From their study of primary mathematics classes in Singapore, Goh and Fraser (1998) reported better student outcomes when classrooms were perceived as having more cohesion and less friction, a finding that offers support for the validity of the instrument. Finally, there is evidence for a relationship between class scores on this measure and the quality of acceptance of included students in those classrooms (Frederickson & Furnham, 1998).

Many different measures have been used to assess teachers' attitudes to inclusion. However, most fail to meet a minimum set of satisfactory psychometric criteria (Antonak & Livneh, 1988). The Opinions Relative to Mainstreaming (ORM) scale (Larrivee & Cook, 1979) was selected for the present study. Antonak and Livneh (1988) identified as strengths its theoretical basis and acceptable psychometric properties. It continues to be widely used with relevant adaptations (Antonak & Larrivee, 1995; Everington, Stevens & Winters, 1999) and it has been found to be readily adapted for use in national contexts beyond the USA where it was developed (Avramidis, Bayliss & Burden, 2000; Curtis, 1986; Hudson & Clunies-Ross, 1984).

Information was also collected on a number of teacher background variables in order both to facilitate comparison with samples of participants in other studies and to identify possible influences on teachers' attitudes to inclusion that could require consideration. In summary, the purpose of this study was to explore the relationship between what teachers think about mainstreaming policies and practices (i.e. their 'espoused theory' of practice) and the types of learning environments that they create for their pupils (i.e. their actual 'theories of practice in use'). The research

was undertaken in primary schools in Auckland, New Zealand. Teachers' attitudes towards mainstreaming were assessed using the ORM scale and characteristics of the classroom learning environment as perceived by the pupils were assessed using the MCI. It was hypothesised that teachers with highly positive attitudes to inclusion are more likely than teachers whose attitudes are medium or low to provide classroom learning environments that are perceived by pupils in ways likely to facilitate the acceptance of included pupils (i.e. high on satisfaction and cohesiveness and low on friction, competitiveness and difficulty).

## 1. Methods

### 1.1. *Procedures*

A random sample of 16 public primary and intermediate schools in the greater Auckland metropolitan area was contacted and invited to participate in the study. Subsequently the schools were visited and the basic purposes of the study were discussed with the principals and their staff. One school declined participation, thus leaving a total of 15 schools (13 primary and two intermediate). Following confirmation by schools (and teachers) of their consent to participate in the study, copies of the teacher questionnaire and the MCI were distributed to all teachers and their classes. Students were aged between 7–8 years and 12–13 years. Arrangements were made for either the first author or a research assistant to administer the MCI in whole-class groups whilst teachers completed their questionnaire in another room. Such a strategy avoided any possible biasing effects that could have emerged if teachers administered the MCI to their own classes. Questionnaires were completed seven to eight months after the start of the school year to allow time for pupils and teachers to get to know each other adequately. The teachers' questionnaires contained the ORM scale and a section collecting background information. On the basis of their scores on the ORM, three groups of teachers were identified: high scorers (the top 25% of the sample), low scorers (the bottom 25% of the sample) and the remaining medium group.

### 1.2. *Participants*

The 15 participating schools provided a potential sample of 67 teachers of classes of pupils aged 7–13 years and a potential pupil sample of 1903. Questionnaires were obtained from 1779 pupils, but 50 of the responses, spread across classes, were found incomplete and were discarded to yield a sample of 1729 pupils. All 67 teachers returned questionnaires, of which four were incomplete and were discarded to give a sample of 63 teachers

TABLE I

Descriptive Statistics and ANOVA Results for Differences Between Teachers with High, Medium and Low Scores on the ORM on Teacher Background Variables

| Variable | Teacher group | | | | | | Difference | |
|---|---|---|---|---|---|---|---|---|
| | High ($n = 16$) | | Medium ($n = 31$) | | Low ($n = 16$) | | $F_{(2,60)}$ | $p$ |
| | M | SD | M | SD | M | SD | | |
| Teaching experience (years) | 9.75 | 9.22 | 14.36 | 9.18 | 15.50 | 9.56 | 1.81 | 0.173 |
| Class level taught | 4.50 | 2.58 | 4.97 | 1.80 | 4.88 | 2.68 | 0.23 | 0.793 |
| Class size | 26.69 | 4.16 | 28.29 | 4.04 | 27.56 | 3.85 | 2.22 | 0.118 |
| | Number (%) | | Number (%) | | Number (%) | | $\chi^2_{(2)}$ | $p$ |
| Gender | | | | | | | | |
| Male | 9 (56%) | | 9 (29%) | | 4 (25%) | | 4.37 | 0.113 |
| Female | 7 (44%) | | 22 (71%) | | 12 (75%) | | | |
| Contact with disabled | | | | | | | | |
| Yes | 7 (44%) | | 20 (65%) | | 11 (69%) | | 2.54 | 0.281 |
| No | 9 (56%) | | 11 (35%) | | 5 (31%) | | | |
| Special courses | | | | | | | | |
| Yes | 13 (81%) | | 28 (90%) | | 15 (94%) | | N/A | |
| No | 3 (19%) | | 3 (10%) | | 1 (6%) | | | |

Mean is significantly different from both of the other group means (Newman-Keuls, $p < 0.05$).

(41 females and 22 males). Other characteristics of the teacher sample are reported in Table I in terms of background variables.

## 1.3. *Measures*

### 1.3.1. *Opinions Relative to Mainstreaming (ORM)*
The ORM (Larrivee & Cook, 1979) is a 30-item questionnaire that provides an index of a teacher's general attitude towards mainstreaming. Larrivee (1982) reported that the items load on five factors:

- General philosophy of mainstreaming (e.g. "Handicapped children should be given every opportunity to function in the normal classroom setting where possible");
- Classroom behaviour of special needs children (e.g. "The behaviour of handicapped students sets a bad example for the other students");

- Perceived ability to teach special needs children (e.g. "Normal classroom teachers possess a great deal of the expertise needed to work with a handicapped child");
- Classroom management of special needs children (e.g. "Integration of handicapped children requires significant changes in normal classroom procedures");
- Academic and social growth of special needs children (e.g. "The challenge of being in a normal classroom will promote the academic growth of the handicapped child").

Slight modifications were made to the scale, American spelling was changed and some wording was altered to be consistent with local usage. Responses on the ORM items are expressed on a five-point Likert-type scale consisting of 'strongly agree', 'agree', 'undecided', 'disagree' and 'strongly disagree'. Responses are arranged to control for item response bias so that an agree response represents an attitude endorsing mainstreaming for 12 of the items and a disagree response represents an attitude endorsing mainstreaming for the other 18 items. Each item is coded so that a score of 5 or 4 reflects positive attitudes and a score of one or two reflects negative attitudes. The total score for the ORM can range from 30 (minimum) to 150 (maximum). Total scores were used in all analyses. Larrivee and Cook (1979) reported a split half reliability coefficient of 0.92. Data are also available on the construct validity (Larrivee & Cook, 1979) and discriminant validity (Larrivee, 1981) of the ORM.

### 1.3.2. *Background Data*
This section of the teacher questionnaire sought information on gender, years of teaching experience, special education courses undertaken, age group taught, class size, and contact with people with disabilities. A number of variables were coded into categories as follows. Class level was coded from 1 to 8, from the lowest to the highest age group. Dichotomous responses were made to two variables: contact (frequent or occasional) with someone who has a disability; and completion of any special education courses.

### 1.3.3. *My Class Inventory (MCI)*
The MCI (Fraser et al., 1982; Majeed et al., 2002) contains 38 statements, each requiring the respondent to indicate agreement (yes) or disagreement (no) with the statement as a description of their classroom. The items are grouped into five scales:

- Cohesiveness (6 items) – the extent to which a classroom is perceived as developing feelings of intimacy as a result of student/teacher interactions;

- Friction (8 items) – the extent of perceived disagreement, tension and antagonism in the classroom;
- Difficulty (8 items) – the extent to which the students perceive classroom activities to be difficult;
- Satisfaction (9 items) – the extent to which students 'like' a classroom;
- Competitiveness (7 items) – the extent to which students perceive an atmosphere of competition in their classroom.

Fraser et al. (1982) reported satisfactory internal consistency reliability and discriminant validity of each MCI scale. Scores on the MCI were analysed to provide a mean score for each classroom on each classroom learning environment scale as perceived by the pupils.

## 2. RESULTS

Demographic information collected from the teachers is shown in Table I. For continuously-distributed variables, one-way between-groups analyses of variance were conducted. Teachers scoring high (above the 75th centile, $M = 116.18, SD = 6.19$), medium (between the 75th and 25th centiles, $M = 98.83, SD = 6.12$), and low (below the 25th centile, $M = 77.00, SD = 8.48$) on the ORM scale did not differ significantly in length of teaching experience, the size of their classes or the age levels which they taught.

Categorical variables were analysed using chi-squared. Groups of teachers scoring high, medium and low on the ORM did not differ significantly on gender or on contact with people who have disabilities. In the case of special courses, it was not possible to proceed with the analysis because the assumption of a minimum expected cell frequency of 5 or greater was violated in three out of the six cells. Across all groups, very few of the teachers had not undertaken a special education course.

Table II presents a series of one-way between-groups analyses of variance undertaken to test the hypotheses that teachers with more positive attitudes to inclusion would provide classroom learning environments that were perceived by pupils in ways likely to facilitate the acceptance of included pupils: high on satisfaction and cohesiveness and low on friction, competitiveness and difficulty. It can be seen from Table II that, with an alpha level of 0.05, a significant main effect in the predicted direction was obtained for the satisfaction scale. Main effects for the friction scale reached a marginal level of significance ($p = 0.052$) and main effects on the other scales were not significant at an alpha level of 0.1, although in each case mean differences were in the predicted direction. Subsequent planned comparisons of groups means for the satisfaction and friction scales indicated that pupils in the classrooms of teachers scoring high on the ORM

TABLE II

Descriptive Statistics and ANOVA Results for Differences on MCI scores for Classes of Teachers with High, Medium and Low Scores on the ORM

| MCI scale | Teacher group | | | | | | Difference | |
|---|---|---|---|---|---|---|---|---|
| | High ($n = 16$) | | Medium ($n = 31$) | | Low ($n = 16$) | | $F_{(2,60)}$ | $p$ |
| | $M$ | $SD$ | $M$ | $SD$ | $M$ | $SD$ | | |
| Satisfaction | 22.94* | 1.79 | 21.51 | 2.24 | 20.77 | 2.43 | 4.15 | 0.020 |
| Friction | 16.41* | 2.28 | 17.44 | 1.53 | 17.93 | 1.81 | 2.98 | 0.052 |
| Competitiveness | 15.75 | 1.73 | 16.31 | 1.25 | 16.51 | 0.88 | 1.51 | 0.228 |
| Difficulty | 11.91 | 1.11 | 12.15 | 1.37 | 12.87 | 1.40 | 2.38 | 0.102 |
| Cohesiveness | 12.17 | 1.74 | 11.23 | 1.43 | 11.70 | 1.12 | 2.28 | 0.110 |

*Significantly different from both of the other groups (Newman-Keuls, $p < 0.05$).

perceived more satisfaction and less friction in their classroom learning environment than did the pupils in the classes of either of the other groups of teachers. Differences between the medium-scoring and low-scoring teacher groups on satisfaction and friction scores were not significant. Effect sizes were calculated for significant between-group differences on the satisfaction and friction scales. Medium to large effect sizes (as defined by Cohen, 1992) were obtained as follows: on satisfaction between high-scoring and medium-scoring groups ($d = 0.80$), between high-scoring and low-scoring groups ($d = 1.02$); on friction between high-scoring and medium-scoring groups, and between high-scoring and low-scoring groups ($d = 0.57$).

## 3. DISCUSSION

The results of this study indicate that pupil perceptions of the learning environment in classrooms of teachers who have strongly positive attitudes to inclusion differ from those of other teachers. The classrooms of teachers who have strongly-positive attitudes to inclusion are perceived by the pupils as higher in satisfaction. Marginally significant trends towards lower scores on friction and nonsignificant differences in the predicted direction on the other scales suggest that further investigation of these variables could be warranted with a larger sample of teachers who have highly-positive attitudes to inclusion. This is particularly so in view of evidence that included pupils enjoy higher acceptance as play mates and work mates in classes that are high on cohesiveness (Frederickson & Furnham, 1998). A larger sample of teachers would also allow a differentiated investigation of pupil perceptions of their learning environments in relation to each of the five factors that make up the ORM scale.

The characteristics of the learning environments found in this study in the classrooms of teachers who are highly positive about inclusion have

been shown to be associated with positive academic outcomes. The meta-analysis of studies conducted by Haertel et al. (1981) concluded that better achievement was consistently found in classes perceived as having greater satisfaction and cohesiveness and less friction. While it is acknowledged that much research has still to be done in this area, some findings suggest that both student achievement and attitude might be improved by creating classroom environments like those shown by research to be conducive to learning (Burden & Fraser, 1993; Fraser, Malone & Neale, 1989).

An experimental approach would be required in future research to investigate the direction of causal relationships between variables shown to be associated in this study. It remains to be established whether changes in teacher attitude towards inclusion would result in changes to the classroom learning environment and, in turn, when changes in the characteristics of the classroom learning environment would produce changes in acceptance of included pupils. Teacher influence is unlikely to be the only determinant of characteristics of the classroom learning environment. There could be a reciprocal influence, with the classroom learning environment influencing teacher attitude to inclusion to a degree. A teacher whose class is high on friction could have concerns about including a pupil who could have social or behavioural difficulties that would be reflected in their responses on attitude surveys such as the ORM.

Class size has been investigated as an environmental variable that could influence teachers' attitudes towards inclusion. It has been hypothesised that a teacher could be less positive about including pupils who need a lot of additional help when they have larger classes than when classes are smaller. Findings on this issue have been mixed. Villa, Thousand, Myers and Nevin (1996) reported that mainstream teachers of classes containing 15–21 pupils expressed more positive attitudes towards inclusion than teachers of classes containing 22–30+ pupils. Cornoldi, Terreni, Scruggs and Mastropieri (1998) did not find that teacher attitudes varied by class size.

However, the Italian classes that were taught by the teachers who participated in the Cornoldi et al. (1998) study were generally much smaller than the classes of the teachers who participated in Villa et al. (1996) study, thus raising the possibility that restriction of range could be implicated in the nonsignificant finding. Cornoldi et al. (1998) reported a mean class size of 18.1 ($SD = 4.4$ ) while the sample studied by Villa et al. (1996) contained 156 classes of 15–21 pupils and 335 classes of 22–30+ pupils. In the present study, for which no variation in teacher attitude by class size was found, restriction of range again could be an issue as classes were predominately large, with mean sizes for the classes of all teacher attitude groups falling between 26.5 and 28.5.

The other potential environmental influence on teachers' attitudes to inclusion that was investigated in the present study was grade level taught.

No significant differences were found across the primary and intermediate grades involving children aged 7–13 years. Studies comparing attitudes towards inclusion of primary and secondary teachers have generally found those of primary teachers to be more positive (Cornoldi et al., 1998; Larivee & Cook, 1979). Factors that Cornoldi et al. (1998) suggest could be contributing to the primary/secondary difference are the more demanding curriculum at the secondary level and the greater time spent by primary teachers with their students. Neither of these factors would be expected to produce grade-level differences given the sample composition in the present study (11 primary schools, two intermediate schools and no high schools).

The majority of the background variables on which information was collected and analysed in this study related to teacher characteristics rather than characteristics of the classroom environment. The purpose was to attempt to identify any factors that could need to be considered as possible influencing variables in interpreting relationships between teacher attitudes and pupil perceived characteristics of the learning environment. Although the three teacher attitude groups were not found to differ on any of these variables, certain limitations in the ways in which particular variables were measured ought to be acknowledged. When teachers were asked whether they had completed any special education courses, a surprisingly low number (11%) said that they had not. This can be compared with 17% of the sample surveyed in Texas, USA by Van Reusen et al. (2001), 21% of the sample surveyed in England by Avramidis et al. (2000), and 67% of the sample surveyed in Israel by Heiman (2001). The unexpectedly low percentage in the present study meant that statistical tests for between-group differences could not be run.

Most studies have found differences in teacher attitudes to inclusion in relation to engagement in special education courses (Avramidis et al., 2000; Bennett, Deluca & Bruns, 1997; Heiman, 2001; Larrivee, 1981; Van Reusen et al., 2001; Villa et al., 1996). Heiman (2001) found more positive attitudes among the 33% of his sample who had completed at least one special education course. Avramidis et al. (2000) did not find those who had completed a school-based course any more positive than those who had no special education courses. However, more positive attitudes were apparent among those who had taken award-bearing university-based courses. Other studies report significant increases in the positivity of teacher attitudes with increasing amounts of special education training (Van Reusen et al., 2001; Villa et al., 1996). It would seem preferable in future to collect information on the amount of special education training undertaken, rather than focusing on the presence or absence of such training, as was done in the present study.

The assessment of contact with people who have disabilities in this study used a yes/no response format which could have had a limiting effect.

Other studies have found that teachers who have experience of people with disabilities express more positive attitudes to inclusion (Everington et al., 1999). Results for the other teacher background variables were consistent with earlier reports in the literature. The majority of studies have found that teacher attitudes to inclusion are not associated with differences on gender (Balboni & Pedrabissi, 2000; Cornoldi et al, 1998; Heinman, 2001; Van Reusen et al., 2001) or years of teaching experience (Balboni & Pedrabissi, 2000; Heinman, 2001; Van Reusen et al., 2001; Villa et al., 1996).

While this study failed to identify any other teacher characteristics or environmental factors that influence the relationship between teacher attitudes to inclusion and features of the pupil-perceived classroom learning environment, only those factors most commonly considered in the previous literature were investigated. The ways in which a number of these variables were assessed limit the confidence that can be placed in the findings. Other limitations relating to the size of the group of teachers reporting very positive attitudes to inclusion have also been discussed. These limitations notwithstanding, the results of this study do suggest that the pupil-perceived learning environments in the classrooms of teachers with very positive attitudes to inclusion differ from those of other teachers in ways likely to promote the academic and social development of included pupils. It remains to be seen whether training or other interventions designed to change teachers' attitudes will impact also on the classroom learning environment and the acceptance of included pupils. It would seem important to investigate the mechanisms through which such changes might be mediated (e.g. through changes in teachers' classroom behaviour). These represent important areas for future research. For the present, the findings of this study appear to support the practice of placing pupils who have special needs with teachers who volunteer to include them as full and active members of their class, and focusing training and intervention efforts on increasing the numbers of such teachers.

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