

The Impact of Explicit and Implicit Teacher Beliefs on Reports of Inclusive Teaching
Practices in Scotland

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Abstract

Successful inclusion is dependent upon teachers implementing classroom adaptations. Teacher beliefs can be expected to play a key role in their decision to make such adaptations. Using a cross-sectional survey, the purpose of the study was to examine mainstream school teachers' explicit and implicit attitudes, self-efficacy and intentions towards children with intellectual disability and to assess their relationship to inclusive teaching. Primary school teachers working in Scotland were invited to take part. Eighty-seven participants completed a questionnaire measuring explicit attitudes, self-efficacy, intentions and inclusive teaching. Participants also completed a Single-Target Implicit Association Test assessing implicit attitudes. The results indicated that self-efficacy predicted reported inclusive behaviour and mediated the relationship between explicit attitudes and reported behaviour. Implicit attitudes did not relate to explicit beliefs (attitudes, self-efficacy, intentions) or behaviour.

Introduction

Inclusion is a broad vision which aims to increase the acceptance and participation of all children, including those with disabilities, within mainstream education (Brownell, Sinedelar, Kiely, & Danielson, 2010; Farrell, 2000; Lindsay, 2007). Inclusive education is intended to optimise the educational experience of children with disabilities within mainstream schools. Educational legislations which mandate inclusion are now in effect in Scotland (Education (Scotland) Act, 1980; The Disability Discrimination Act, 1995; Scotland's School Act, 2000; Education (Disability Strategies and Pupils' Educational Records) (Scotland) Act, 2002; The Education (Additional Support for Learning) (Scotland) Act, 2004, 2009, 2016). This is reflected in the establishment of the Curriculum for Excellence, the current curriculum followed by Scottish schools. This states that social and educational inclusion is central; all children should be allowed to develop their capacity to be successful learners. Legislation to establish successful inclusion has also been made internationally (UNESCO Salamanca Statement, 1994; No Child Left Behind Act, 2001; Convention on the Rights of Persons with Disabilities, 2006, 2014).

The prevalence of children attending mainstream schools who experience a disability is increasing internationally. While policy mandates inclusion, it is classroom teachers' behaviours that determine its success. Teachers recognize the importance of inclusion (Kurth & Keegan, 2012; McLeskey & Waldron, 2002). However, evidence that they implement inclusive practices is mixed (Destefano, Shriner, & Lloyd, 2001; Jordan & McGhie-Richmond, 2014; Kurth & Keegan, 2012; Roy, Guay, & Valois, 2013).

Research suggests that teachers' explicit attitudes about children with disabilities - that is, their conscious representations activated using deliberative, effortful thinking (Greenwald & Banaji, 1995) - play a key role in their use of inclusive teaching practices

(Ahmmed, Sharma, & Deppeler, 2013; Jordan, Glenn, & McGhie-Richmond, 2010; Kiely, Brownell, Lauterbach, & Benedict, 2014;; Author, 2013; Author, 2016, Author, 2018).

Further, in line with social cognition theories such as the Theory of Planned Behaviour (TPB; Ajzen, 1991), it is frequently reported that teachers' self-efficacy, that is, their perception of their ability to work successfully with learners with intellectual disability (ID), and behavioural intentions influence their use of inclusive teaching strategies (e.g., Author, 2013, 2016; Klassen, Tze, Betts, & Gordon, 2011; Yan & Sin, 2014, 2015).

Consistent with TPB, teachers' explicit attitudes towards inclusion may influence their behaviour indirectly through self-efficacy or behavioural intentions (Author, 2013; Yan & Sin, 2014; Author, 2016). Research is needed which examines whether intention or self-efficacy is more important in the relationship between explicit attitudes and teacher behaviour and whether these variables mediate the relationship.

We also know little about the role of teachers' implicit attitudes, that is attitudes which occur outside of conscious awareness (Greenwald & Banaji, 1995), in their use of inclusive teaching practices. This is important given previous evidence which suggests that there may be discrepancies between teachers' explicit and implicit attitudes towards children with special needs. For example, Hornstra, Dennessen, Bakker, Van den Bergh and Voeten (2010) showed that teachers' explicit attitudes towards children with dyslexia were highly positive; in an evaluative priming task to measure implicit attitudes, however, the same individuals were negative towards this category of student.

Even when explicit attitudes are reported as positive, implicit preference has been reported for typically developing children over those with an emotional and behavioural disorder (Scanlon & Barnes-Holmes, 2013), with autism (Kelly & Barnes-Holmes, 2013), and those with additional support needs because of immigrant backgrounds (Markova, Cate,

Krolak-Schwerdt, & Glock, 2015). Furthermore, Van den Bergh, Denessen, Hornstra, Vorten, and Holland (2010) found no correlation between teachers' implicit and explicit attitudes towards ethnic minority students. This suggests that teachers' implicit attitudes towards children with ID may differ from their explicit attitudes.

One study has attempted to measure teachers' implicit attitudes towards children with ID. Hein, Grumm and Fingerle (2011) showed that participants (student teachers) were more likely to associate the category 'disabled' with negative attributes such as 'unpleasant', thus suggesting that teachers hold a negative implicit attitude towards ID. The impact of these attitudes on behaviour was not tested. The sample comprised student teachers who may not have had teaching experience at the point of participation. There is a need to understand practising teachers' implicit attitudes and how these influence inclusive classroom behaviours in addition to explicit attitudes, self-efficacy and intention. To do this, it is important to consider dual-attitude processing models.

Dual-Attitude Processing Models

Dual-attitude models represent two different modes of information processing which are claimed to influence behaviour (Fazio 1990; Fazio & Towles-Schwen 1999; Nosek et al., 2011; Strack & Deutsch, 2004). The terminology varies across different accounts but it is generally agreed that one mode is based on explicit reasoning (explicit attitudes, self-efficacy, intentions) whereas the other is based on a non-conscious, impulsive system (implicit attitudes; Boyer, 2006; Pomery, 2008; Sabin, Marini, & Nosek, 2012; Stanovich, 2004).

Dual-process models postulate how and when explicit and implicit processes may predict behaviour (Nosek et al., 2011). Teachers may desire and/or be encouraged to promote inclusiveness. Whether or how they achieve this goal may depend in part upon explicit reasoning. For example, explicit reasoning is activated when attitudes are not readily

accessible and are retrieved from memory using effortful, deliberative decision making processes (e.g., evaluating the positive and negative consequences of the behaviour; Fazio & Roskos-Ewoldsen, 2005; Wilson, Lindsay, & Schooler, 2000). When this type of processing is engaged, teachers' explicit attitudes indirectly predict behaviour through behavioural intentions (i.e., willingness to exert effort to perform the behaviour; Ajzen, 1991) or as a function of beliefs about their own capacities (i.e., teaching-related self-efficacy; Author, 2016).

Teachers must deal with several demands simultaneously in the classroom and this can result in cognitive overload (Kumar, Karabenick, & Burgoon, 2015). For example, as well as considering children with ID, teachers must also give time to the needs of all the typically developing children. This may result in the teacher having little opportunity to engage in an effortful, explicit thought process.

Dual-attitude models propose that behaviour may also be influenced by a second cognitive processing type: non-conscious processing (Fazio, 1990). This could be anticipated to reduce teachers' scope to use explicit beliefs when responding to students. It may be, for example, that teachers are also influenced by non-conscious, implicit attitudes to determine their use of inclusive teaching practices. This involves activation of implicit, unconscious attitudes, a process which rapidly initiates behaviour without the mediation of intentions or self-efficacy (Fazio, 2001).

Studies have supported dual-attitude models' account of the attitude-behaviour relationship in other contexts (Elliott, Lee, Robertson, & Innes, 2015; Dovidio, Kawakami, Johnson, Johnson, & Howard, 1997; Dovidio, Kawakami, & Gaertner, 2002; McConnell & Leibold, 2001). However, Nosek et al. (2011) argued that research is still required in order to understand the predictive validity of implicit attitudes on behaviour. The distinction between

explicit and implicit may also be applicable to understanding the relationship between teachers' attitudes and inclusive classroom behaviours. Investigations of teacher attitudes and behaviour towards children with disabilities have most often relied on explicit measurement, commonly employing questionnaires. Few studies have examined the role of teachers' implicit attitudes and inclusive classroom behaviour. Thus, the extent to which explicit and implicit attitudes towards working with children with ID predicts teacher behaviours needs fuller investigation.

Note that the availability of dual attitudinal processes is, in principle, neutral with respect to the complementarity or otherwise of the attitudes. That is, explicit and implicit attitudes could be aligned, or in opposition, or independent (Perugini, 2005). In applying the framework to a new domain, it needs to be determined to what extent either or both types of attitude are associated with favourable or unfavourable behaviours toward relevant target categories. This will be examined in the present study in relation to teachers' explicit and implicit attitudes towards the inclusion of children with ID.

The Current Study

Based on dual-attitude models, the current study examined the extent to which explicit and implicit attitudes towards working with children with ID predict teacher behaviours. To do this, we measured teachers' explicit beliefs (explicit attitudes, intentions, self-efficacy) and implicit attitudes towards children with ID and compared how these related to reported inclusive classroom behaviours. No research has attempted this, despite the growing acknowledgement of the potential relevance of implicit attitude measurement in a teaching context.

We focused specifically on inclusion of children with an ID who are defined as having difficulties in learning and development. Children with an ID therefore find it difficult

to learn, understand new or complex information, communicate with others and cope independently (American Psychiatric Association, 2013; Author, 2016, 2018; British Psychological Society, 2000; Mencap, 2018). Teachers must make curricular, resource and instructional adaptations for children with ID and have reported finding this challenging (Englebrecht, Oswald, Swart, & Eloff, 2003).

The study had three main research objectives. The first was to examine the nature of mainstream teachers' explicit attitudes, intentions, self-efficacy and implicit attitudes towards children with ID. The second objective was to assess the relationship among primary teachers' explicit beliefs (attitudes, self-efficacy and intention), implicit attitudes towards children with ID and reported inclusive behaviour. The third objective was to determine whether the relationship between attitudes and reported behaviour was mediated by intentions and self-efficacy. We expected that explicit attitudes and implicit attitudes would predict teachers' reported inclusive classroom behaviours. Those with more positive explicit attitudes and implicit attitudes would report using more inclusive classroom behaviours. We also expected that the relationship between explicit attitudes and reported behaviour would be mediated by intention and self-efficacy, as both of these variables have previously been reported to mediate the relationship between explicit attitudes and behaviour (Ajzen, 1991; Author, 2016).

Method

Design

The study was cross-sectional in design and involved the use of the ST-IAT which requires participants to complete a short computer task. Self-report questionnaires were also used to measure demographic variables, explicit disability attitudes, explicit inclusion

attitudes, teachers' reported inclusive classroom behaviours, non-verbal behaviour and self-efficacy (instructional strategies, classroom management, and student engagement).

Participants

Data were collected from 87 Scottish general classroom primary teachers from 21 mainstream schools in Scotland. These schools were randomly selected however it should be noted that not all Scottish schools were approached. The sample included 72 females and 8 males (7 participants did not opt to provide gender information). Age ranged from 22 to 62 ($M=36.89$ $SD=11.61$). The mean length of teaching experience was 11.22 years ($SD= 9.06$), with a range from one year's experience to 40 years' experience. A sample of participants (33%) taught children aged 4-6 years, 44% taught children aged 7-10 years and 15% taught children aged 11-12 years (13 teachers did not provide this information).

Participants were asked to provide information regarding their gender, age, years of experience teaching and whether they had completed any special education training.

Recruitment strategy Four Scottish local education authorities (there are 32 local authorities in total in Scotland) were contacted in order to obtain permission to approach mainstream primary schools within these authorities. These authorities were selected as they represented diverse areas across Scotland meaning that schools were in areas of different socio-economic statuses. The number of schools within each authority differs based on the size of that council area. Schools within the authorities were then randomly invited to participate in the study. To do so, the first author contacted schools to discuss the study with head teachers and invite teachers to take part. The researcher then arranged a time and date to visit the school. The number of teachers who took part per school ranged from 1 to 10. This was a result of the staff size in each school working in each school and whether teachers volunteered to take part. All teachers within the selected schools were invited to take part.

Measures

Explicit attitude The Interaction with Disabled Persons Scale (IDP: Gething & Wheeler, 1992) was used to assess explicit attitudes towards disability given that the items could be easily adapted to measure teacher attitudes. The IDP involves asking participants to reflect on personal experiences with specific individuals with disabilities. As such, it has been argued that participants are therefore less susceptible to socially desirable responding (e.g. Thomas, Doyle & Vaughn, 2007; Thomas, Palmer, Coker-Juneau, & Williams, 2003). The scale consists of 20 items which require participants to report how they think about those with a disability. Example items include 'I am grateful that I do not have such a burden'; 'I wonder how I would feel if I had this disability'; 'I am afraid to look at the child straight in the face'. We adapted the measure to relate specifically to attitudes towards children with ID by instructing participants 'the following statements relate to beliefs towards children with intellectual difficulties (ID)'. We used the scale's original six-point Likert scale (1=*strongly disagree* to 6=*strongly agree*) given work has previously supported the psychometric properties of the scale (Nario-Redmond, Gospodinov, & Cobb, 2017; Shields, & Taylor, 2014; Vaughn, Thomas, & Doyle, 2011; Wyants, & Dennis, 2017). Participants were asked to indicate the extent to which they agreed with each statement by choosing one of the Likert options. Scores were calculated to produce a mean explicit attitude score ($\alpha=.68$ for the present study).

On the original scale, higher scores indicate more negative attitudes towards disabled people while lower scores indicate positive attitudes. In the implicit attitude measure employed in this study, higher scores indicated more positive attitudes. To maintain consistency between measures and to facilitate ease of reading, we reversed scoring of the explicit scale. Hence, in both the implicit and explicit scales, a higher score reflects more positive attitudes.

Teacher self-efficacy The Teachers' Sense of Efficacy Scale (TSES: Tschannen-Moran & Woolfolk, 2001) was used to measure teachers' self-efficacy towards the inclusion of children with ID. The reliability of the scale has been demonstrated in previous research (Klassen, & Chiu, 2010; Author, 2013; Poulou, 2007; Wolters & Daugherty, 2007). The 12-item version was used in the current study in order to minimize the time required of participants. We adapted the scale to measure teacher self-efficacy specifically towards working with children with ID. A sample item is "To what extent can you use a variety of assessment strategies for children with ID?". Participants responded to items using a 9-point Likert scale ranging from '*nothing at all*' to '*a great deal*' ($\alpha=.93$ for the present study).

Behavioural intention The behavioural subscale of the Multidimensional Attitudes towards Inclusive Education Scale (MATIES: Mahat, 2008) was employed to measure behavioural intention to work with children with ID. The scale has previously been confirmed to be a reliable measure of inclusive intentions (Ahmmed et al., 2013; Yan, & Sin, 2014, 2015). The scale contains six items assessing the individual's intention to implement inclusive teaching practices. Again, we modified the scale to relate only to including children with ID. An example item is 'I am willing to adapt the curriculum to meet the individual needs of students with ID regardless of their ability'. Participants indicated the extent to which they agreed or disagreed with each statement on a six-point Likert rating scale: 1=*strongly disagree*, 2=*somewhat disagree*, 3=*disagree*, 4=*agree*, 5=*somewhat agree* and 6=*strongly agree* ($\alpha=.76$). Higher scores indicated a more positive intention.

Implicit attitudes The most commonly used measure of implicit attitudes is the Implicit Association Test (IAT) developed by Greenwald, McGhee and Schwartz (1998). A limitation of the IAT is that it measures attitudes towards pairs of attitude objects. The task is therefore problematic in contexts where there is no clear opposite category (Bohner, Siebler, Gonzalez, Haye, & Schmidt, 2008; Penke, Eichstaedt, & Asendorpf, 2006). In response to

this, Wigboldus, Holland and van Knippenberg (2004) developed the Single Target IAT (ST-IAT). This uses a similar procedure as the original IAT but differs in that only one target category is used. The reliability and validity of the ST-IAT has previously been supported (Bluemke & Friese, 2008; Conroy, Hyde, Doerksen, & Riberio, 2010; Hempell, Buck, Goesthals, & van Marle, 2012; Wilson & Scior, 2015). In the current study, split-half coefficients (.76) and Cronbach's alpha values using *D* scores ($\alpha=.82$) demonstrated reliability.

Teachers' implicit attitudes towards children with ID were measured using a version of the ST-IAT. The ST-IAT is based on the premise that individuals perform faster when they can use well-rehearsed cognitive associations (Rudman, 2011). The IAT assesses the strength of associations between target concepts (e.g., students with ID) and evaluations (e.g., positive or negative). Implicit attitudes are inferred from the difference in participants' response time to sort words between these different pairings. An individual would be said to have a negative implicit attitude towards children with ID if performance is faster when categorising words when 'children with ID' and 'negative' shared a response key than when 'children with ID' and 'positive' shared a response key (Greenwald et al., 1998). Further, even if participants are aware of the IAT procedure and task expectations, the IAT effect is still reliably produced, suggesting that responses cannot be faked or controlled for motives of social desirability (Banse, Seise, & Zerbes, 2001; Do-Yeong, 2003; Egloff, & Schmukle, 2002; McConnell & Leibold, 2001).

The ST-IAT in the current study was developed using E-Prime software. The target category of the ST-IAT was labelled as 'child with ID'. Target stimuli words (i.e., words to which participants would be required to respond by placing them under the 'child with ID' label) were: *mental handicap, slow learner, impaired, special needs*. These words have been used in previous research examining implicit attitudes towards ID (Wilson & Scior, 2015).

The attribute category of the ST-IAT was labelled ‘positive’ vs. ‘negative’. Positive words were: *joy, love, peace, wonderful, pleasure, excellent*. Negative words were: *evil, angry, terrible, rotten, nasty, bomb*. These were taken from the stimuli available on Project Implicit website (Project Implicit, 2011) and Rudman (2011). Rudman (2011) argued that words selected for the attribute category should not be associated with words comprising the target category. Given that the selected words do not directly related to children with ID, the chosen stimuli were appropriate.

For illustrations of each block of the computer task, see Appendix 1. In Block 1 (20 trials), participants practiced categorising the two sets of evaluative concept stimuli (i.e., positive and negative words) using the ‘I’ and ‘E’ keyboard keys. In this trial, the ‘I’ key represented the negative category shown at the top right of the screen and the ‘E’ key represented the positive category shown at the top left of the computer screen. Participants were therefore asked to categorise each word as ‘positive’ or ‘negative’. In Block 2 (20 trials) the words representing the target category (i.e., child with ID) appeared at one side of the screen, next to either the ‘positive’ or ‘negative’ category. Participants then practised categorising all three sets of words (positive, negative and child with ID words listed above). Block 3 (test trial) was identical to Block 2 with the exception that the number of trials was increased to 40 given that this was the test trial. In Block 4 (20 trials) the target category was switched to be paired with the opposite response key and again, participants practised categorising all three sets of words. Block 5 (test trial) was identical to Block 4 with the exception of the number of trials increased to 40 given that this was the test trial. See Table 1 for trial number and sequence details.

[Table 1 about here]

Scoring. A scoring algorithm modelled on Greenwald, Noesk, & Banaji, (2003) improved *D* score algorithm was implemented. The *D* score is an effect size based on the pooled standard deviation on the ST-IAT scores for the whole sample (Rudman, 2011). Steps to calculate the *D* score are discussed in the Results. Scores range from -2 to 2; the more positive the *D* score, the more positive the implicit attitude is said to be (Nosek, Greenwald, & Banaji, 2007a).

Reported inclusive behaviours Teacher-reported behaviour was measured using the Differentiated Instruction Scale (DIS; Roy et al., 2013). The reliability of the DIS has been supported in a number of studies (e.g., Prast, Van de Weijer-Bergsma, Kroesbergen, & Van Luit, 2015; Roy, Guay, & Valois, 2015). The measure assesses the use of instructional adaptations (8 items e.g.: ‘Plan different assignments to match students’ abilities’) and academic progress monitoring strategies (4 items e.g.: ‘Analyse data about students’ academic progress’). Participants responded using a 5-point Likert scale, ranging from 1=*never* to 5=*very frequently*. Participants were instructed to respond to questions considering only adaptations for children with ID. This is in line with the principle of compatibility, which states that attitudes will better predict behaviour if the specificity of the measured attitude matches the specificity of the behaviour (e.g. Ajzen & Fishbein, 1975; Epton, Currie, & Armitage, 2017; Pacquin & Keating, 2017; Siegel, Navarro, Tan, & Hyde, 2014). Thus, given that we measured attitudes towards children with ID, behaviour should also be measured in relation to children with ID. Items were summed to provide an inclusive behaviour score ($\alpha=.84$). Higher scores indicated higher use of inclusive teaching strategies.

Procedure

After ethical approval was obtained, the first author visited schools to administer the questionnaire and computer task. Before starting the tasks, teachers were provided with the

definition of ID. This ensured that all teachers were considering a child who found it difficult to learn, understand new or complex information, communicate with others and cope independently.

All participants completed the ST-IAT on a laptop. Instructions for the task, and a reminder of the definition of 'children with ID', were provided on the computer screen. Before commencing, participants were asked if they understood what they were being asked to do. The researcher answered any questions about instructions at this point. Further instructions were given after each set of trials to make participants aware what they were expected to do in the next block. In total, the task took approximately 5 minutes to complete. The questionnaire took no longer than 15 minutes to complete. ST-IAT and questionnaire data were matched using an allocated number. The order of administration of the ST-IAT and the questionnaires was counterbalanced as this is common IAT procedure (Nosek, 2005; Perugini, 2005; Spence & Townsend, 2007; Vaughn et al., 2011; Wilson & Scior, 2015). Multivariate analysis of variance showed no significant differences in *D* scores with respect to the order in which the two tasks were completed, $V=.22$, $F(11, 62)= 1.58$, $p=1.29$. On completion, teachers read a debrief sheet.

Data Analyses

Data were analysed using SPSS 22. *D* scores were calculated to examine the nature of teachers' implicit beliefs. Guidelines (Nosek et al., 2007a; Wilson & Scior, 2015) were used to determine whether participants had a positive, neutral or negative implicit attitude. Correlational analysis was used to examine of relationships between implicit and explicit attitudes towards children with ID. Independent sample t-tests were conducted to determine whether training impacted upon implicit and/or explicit attitudes. Hierarchical linear regression was conducted to determine whether explicit beliefs (explicit attitudes, self-

efficacy, intention) and implicit attitudes predicted reported inclusive behaviour. Moderation analysis was used to examine whether self-efficacy or intention would moderate the relationship between teacher implicit attitudes and inclusive classroom behaviours.

Results

Calculating the *D* score

The *D* score was calculated using Greenwald et al.'s (2003) improved scoring algorithm. Following Greenwald and colleagues' recommendations, we screened first for extreme cases (trials with latencies greater than 10,000ms. and participants who have more than 10% of trials with latency less than 300ms.). No cases met these criteria and thus no data were removed. The means for each block were then computed. One pooled standard deviation for all trials in Blocks 2 and 4 and another for all trials in Blocks 3 and 5 were calculated. Two mean difference scores were then calculated (between Block 4 mean subtracted from Block 2 mean and then Block 5 mean subtracted from Block 3 mean). These differences were then divided by the associated pooled standard deviation. Finally, an average of the two resultant values was computed. This resulted in what Greenwald et al. (2003) termed the '*D* score'.

Using published cut-off score guidelines (Noesk et al., 2007a; Vaughn et al., 2011; Wilson & Scior, 2015), a *D* score ranging between -.16 to -2.00 was classed as negative. A score ranging from -.15 to .15 indicated a neutral implicit attitude. Finally, a score of .16 to 2.00 suggested a positive implicit attitude. In the present study, the scoring algorithm demonstrated that the mean *D* score was -.03 which would suggest that teachers had a neutral implicit attitude. However, scores ranged from -.99 to .89. This indicates great variety in scores, with strong positive as well as strong negative implicit attitudes in evidence. The

means for explicit attitudes, self-efficacy and intentions were relatively high suggesting positive explicit beliefs.

Relationship between teacher explicit and implicit attitudes, demographics and reported behaviour towards children with ID

Table 2 shows means, standard deviations, and bivariate correlation coefficients for the scales used in the study. Examination of the correlation matrix shows that explicit attitudes were significantly correlated with self-efficacy and reports of inclusive teaching. Further, both intentions and self-efficacy were significantly correlated with reported behaviour. Teachers with more positive attitudes towards children with disabilities had higher self-efficacy and intentions to use inclusive teaching practices. A significant correlation was obtained between years of experience and explicit attitudes. The more years' experience the teachers had, the more positive their explicit attitude towards children with ID. Implicit attitude, was not related to any other variable (explicit attitude, self-efficacy, intention, or reported behaviour).

Despite this, there was a statistically significant implicit attitude mean score difference between participants who have completed training and those who didn't. Those who reported that they had not completed special education training had significantly more negative implicit attitudes ($M=-0.08$ $S.D=0.33$) than those who reported completing special education training ($M=0.13$ $S.D=0.33$), $t(69) = -2.03$, $p=.046$ (all t-test assumptions were met). No such difference was found for explicit attitude.

[Table 2 about here]

Predicting teachers' reported inclusive behaviour

Multilinear regression was used to examine the relationship between explicit beliefs (explicit attitudes, self-efficacy, intention), implicit attitudes and reported inclusive

behaviour. Assumptions of regression were checked and confirmed (linear relationship, homoscedasticity, multivariate normality, no multicollinearity or auto-correlation).

Demographic variables (years of experience and training) were entered at Step 1. Implicit attitude was added at Step 2 and explicit attitude was added at Step 3. Finally, self-efficacy and intention were added at Step 4.

Results showed that at Step 1 (see Table 3), demographic variables did not account for a statistically significant proportion of the variance ($R^2=.005$, $p=.850$). The inclusion of implicit attitudes to the model did not significantly increase R^2 ($R^2=.02$, $p=.349$). Including teachers' explicit attitudes at Step 3 resulted in a significant increase to R^2 ($R^2=.17$, $R^2_{\text{change}}=.15$, $p=.001$). Only teachers' explicit attitudes towards disability were a significant predictor of reported inclusive behaviour. When self-efficacy and intention were added to the model, R^2 increased ($R^2=.39$, $R^2_{\text{change}}=.22$, $p<.001$). At this Step, only self-efficacy was a significant predictor of reported inclusive behaviour. This supports our expectation of a mediational model in which self-efficacy mediates the relationship between teachers' explicit attitudes and reported inclusive behaviour.

[Table 3 about here]

Indirect effect of explicit attitudes

Mediation analysis was conducted using Hayes (2013) PROCESS macro to examine the mediating role of self-efficacy in the relationship between explicit attitudes and reported inclusive behaviour. Results showed that self-efficacy partially mediated the relationship between explicit attitudes and total reported inclusive behaviour ($\beta=.20$, BCa CI [.08, .37]).

Discussion

The study examined teacher explicit beliefs (explicit attitudes, self-efficacy, intentions) and implicit attitudes towards children with ID and how these related to the

teachers' reports of inclusive teaching practices for such children. Results showed that teachers' self-efficacy predicted teachers' reported inclusive behaviour. Teachers' explicit attitudes also predicted reported behaviour and this relationship was partially mediated by teacher self-efficacy. However, teachers' implicit attitudes towards children with ID were not related to explicit beliefs (explicit attitudes, self-efficacy, behavioural intentions) or to reported inclusive teaching practices. Teachers who reported completing special education training had a more positive implicit attitude.

Teacher explicit beliefs

Teachers with more positive explicit attitudes towards children with ID were more likely to report using inclusive strategies. According to dual-attitude models (Nosek et al., 2011; Wilson et al., 2000), then, this provides initial support that teachers' explicit attitudes are predictive of reported inclusive behaviour. Regardless of pressures of daily classroom demands, our findings suggest that teachers use explicit reasoning (deliberative, effortful thinking) which activates conscious, explicit beliefs when deciding how to work with children ID. Indeed, results showed self-efficacy partially mediated the relationship between explicit attitudes and reported behaviour. This study attempts to show which dual-attitude processing mode (Fazio 1990; Fazio & Towles-Schwen 1999; Nosek et al., 2011; Olson & Fazio, 2009; Strack & Deutsch, 2004) is important to teachers' reported inclusive teaching.

We have demonstrated the predictive strength of self-efficacy over intention in teachers' inclusive behaviour and this variable mediated the relationship between explicit attitudes towards children with ID and reported behaviour. This suggests that whether teachers act on their positive attitudes is dependent upon their levels of self-efficacy. The more able the teacher perceives himself or herself to be to use inclusive teaching strategies impacts reports of inclusive teaching. We therefore provide further support for the

importance of self-efficacy within an educational setting and, in particular, for working with children with ID. This extends previous findings which show the importance of self-efficacy in a teaching context (e.g. Author, 2016, 2018; Klassen et al., 2011; Tschannen-Moran & Woolfolk Hoy, 2001).

Interestingly, length of teaching experience was unrelated to efficacy. Teacher efficacy towards working with children with ID does not appear to get better over length of teaching experience. This supports previous research which has found that years 'of experience has little impact on teacher self-efficacy (e.g. Morris, Usher, & Chen, 2016; White, 2007). More research is needed to examine how teacher beliefs about inclusion and therefore their practices can be changed. For example, Author (2018) found that mastery experiences are important to teachers' self-efficacy towards working with children with ID. Mastery experience relates to the individual experiencing success in a previous performance of a challenging task (Bandura, 1994). It may be that teachers look to their past performance in order to determine how capable they view themselves in using inclusive teaching strategies. Thus, rather than examining length of teaching experience, it may be important to examine the quality of this experience.

Teacher implicit beliefs

Results revealed variability in teachers' implicit attitude scores. For example, teachers who reported that they had not completed special education training had significantly more negative implicit attitudes than those who reported completing special education training. This is interesting given that findings examining the impact of training on explicit inclusive attitudes have been mixed (Brown, Walsh, Hill, & Cipko, 2008; Campbell, Gilmore, & Cuskelly, 2003; Author, 2013; Tait & Purdie, 2000). It may be beneficial to consider implicit attitudes when assessing the effects of training.

Explicit and implicit attitudes towards children with ID were not correlated. Teachers' implicit attitudes were not related to their self-reported attitudes, self-efficacy or intention. This is consistent with research across a range of psychological domains (Brauer, Wasel, & Niedenthal, 2000; Dovidio, Kawakami, & Beach, 2001; Fazio, Jackson, Dunton, & Williams 1995; Wilson & Scior, 2015) including teacher attitudes (Van den Bergh et al., 2010). Hofmann, Gawronski, Gschwendner, Le, and Schmitt's (2005) argued that the relationship between explicit and implicit attitudes is influenced by the extent to which the individual has motivation or opportunity to retrieve additional information from memory. Correlations will be higher when the attitude object is associated with a higher degree of spontaneity but lower when higher order thought processes are elicited. The lack of correlation in the present study therefore suggests that teachers' explicit thought processes relating to children with ID are not associated with implicit processes.

Teachers' implicit attitudes did not predict their reports of inclusive classroom behaviour. Evidence to suggest that implicit attitudes predict behaviour is mixed across domains (Fazio & Olson 2003; Nosek et al., 2007b). Some argue that implicit attitudes are more likely to predict non-verbal behaviours (e.g., expression of warmth, eye contact) whereas explicit attitudes predict rational, deliberate behaviours (Dovidio, Kawakami, & Gaertner, 2002). This would provide an explanation as to why implicit attitudes were not related to reported behaviour, given that we were concerned with deliberative teaching practices. Against this, it should be noted that implicit attitudes have been found to predict some deliberate behaviours (Arcuri, Castelli, Galdi, Zogmaister, & Amadori, 2008; Freise, Bluemke, & Wänke, 2007; Greenwald, Poehlman, Uhlmann, & Banaji, 2009; Rudman, 2004). Research must now continue to examine which teacher behaviours are more influenced by implicit attitudes or explicit beliefs.

Conclusion

The study investigated the impact of teacher explicit beliefs and implicit attitudes towards children with ID on reported inclusive behaviour. Results showed explicit attitudes and self-efficacy were important in the prediction of reported inclusive behaviour. We also found that completing special education training was associated with more positive implicit attitudes, and that those with fewer years' teaching experience, i.e., newer teachers, were more likely to report having completed special education training. However, teachers' implicit attitudes towards children with ID did not relate to explicit attitudes, self-efficacy, intentions or reported inclusive behaviour. These findings indicate that, to support teachers working with learners with ID, intervention should focus on bolstering explicit social cognitions about inclusion, inclusive teaching plans and practical classroom strategies.

Implications

The findings have important implications for practice, not only within the Scottish education system but also internationally given that inclusive education legalisation is in place across the world. If given access to special education training, teachers may develop more positive implicit attitudes towards working with children with ID. However, it is more pressing that training or intervention target explicit social cognitions about inclusion. The findings suggest that in order to support teachers to work with learners with ID, intervention should focus on enhancing teachers' explicit beliefs about inclusion. Although this study was conducted in Scotland, evidence exists (e.g. Forlin, Sharma, & Loreman, 2007) which shows the impact of lack of training upon successful inclusion internationally and as such, these implications have relevance globally.

Limitations

The use of self-report methods to assess teacher behaviour may be considered a limitation of the study. Common method variance and socially desirable responding are

arguments against using a number of self-report measures (Campbell & Fiske, 1959; Van de Mortel, 2008). However, procedural remedies proposed by Podsakof, MacKenzie, Lee, and Podsakoff (2003) were used in the present study to reduce common method variance. It should also be noted that strong relationships between teachers' self-reported and observed behaviour have been reported elsewhere (Clunies-Ross, Little, & Kienhuis, 2008; Desimone, 2009; Stanec, 2009). Desimone (2009) argued that observations and surveys elicit the same information with regards to teaching behaviours. This supports the value of teacher self-reports.

Future research, however, may address the relationship between explicit beliefs, implicit attitudes and teachers' inclusive behaviour by using a multi-method approach to measuring actual practice (e.g., teacher logs, observation). Using our findings (to focus on explicit attitudes and self-efficacy) and modified version of the ST-IAT, future researchers may choose to examine explicit and implicit predictors of inclusive teaching using objective behavioural measures. It should be noted though, that this would introduce different limitations (e.g., impression management, observer bias, the need for multiple observations of each participant; Desimone, 2009; Lawrenz, Huffman, & Robey, 2003; Muijs, 2006).

References

Author 2009 [details removed for peer review]

Author 2013 [details removed for peer review]

Author 2016 [details removed for peer review]

Author 2018 [details removed for peer review]

Ahmed, M., Sharma, U., & Deppeler, J. (2013). Variables affecting teachers' intentions to include students with disabilities in regular primary schools in Bangladesh. *Disability & Society, 29*, 317–331. <http://dx.doi.org/10.1080/09687599.2013.796878>.

Ajzen, I. (1991). The theory of planned behavior. *Organizational Behaviour and Human Decision Processes, 50*, 179-211.

Ajzen, I., & Fishbein, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, 84*, 888-918. <http://dx.doi.org/10.1037/0033-2909.84.5.888>.

American Psychiatric Association (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Arlington, VA: American Psychiatric Publishing.

Arcuri, L., Castelli, L., Galdi, S., Zogmaister, C., & Amadori, A. (2008). Predicting the vote: Implicit attitudes as predictors of the future behavior of decided and undecided voters. *Political Psychology, 29*, 369-387.

Avramidis, E., & Norwich, B. (2002). Teachers' attitudes towards integration / inclusion: A review of the literature. *European Journal of Special Needs Education, 17*, 129-147. DOI: 10.1080/08856250210129056.

- Bandura, A. (1994). *Self-efficacy*. In V. S. Ramachaudran (Ed.), *Encyclopedia of human behavior* (pp. 71-81). New York: Academic Press.
- Banse, R., Seise, J., & Zerbis, N. (2001). Implicit attitudes towards homosexuality: Reliability, validity and controllability of the IAT. *Experimental Psychology*, *48*, 145–160.
- Bluemke, M., & Friese, M. (2008). Reliability and validity of the Single-Target IAT (ST-IAT): Assessing automatic affect towards multiple attitude objects. *European Journal of Social Psychology*, *38*, 977–997. doi:10.1002/ejsp.487.
- Bohner, G., Siebler, F., Gonzalez, R., Haye, A., & Schmidt, E. A. (2008). Situational flexibility of in-group-related attitudes: A single category IAT study of people with dual national identity. *Group Processes & Intergroup Relations*, *11*, 301-317. doi: 10.1177/1368430208090644.
- Boyer, T. W. (2006). The development of risk-taking: A multi-perspective review. *Developmental Review*, *26*, 291–345. <https://doi.org/10.1016/j.dr.2006.05.002>.
- Brauer, M., Wasel, W., & Niedenthal, P. (2000). Implicit and explicit components of prejudice. *Review of General Psychology*, *4*, 79–101. doi: 10.1037//1089-2680.4.1.79.
- Brown, K., Walsh, L., Hill, K., Cipko, J. (2008). The efficacy of embedding special education instruction in teacher preparation programs in the United States. *Teaching and Teacher Education*, *24*, 2087-2094. <http://dx.doi.org/10.1016/j.tate.2008.02.013>.
- Brownell, M. T., Sinedelar, P. T., Kiely, M. T., & Danielson, L. C. (2010). Special education teacher quality and preparation: Exposing foundations, constructing a new model. *Exceptional Children*, *76*, 357-377.

Campbell, D. T., & Fiske, D. W. (1959). Convergent and discriminant validation by the multi-trait multi-method matrix. *Psychological Bulletin*, *56*, 81–105.

Campbell, J., Gilmore, L., & Cuskelly, M. (2003). Changing student teachers' attitudes towards disability and inclusion. *Journal of Intellectual and Developmental Disability*, *28*, 369-379. <https://doi.org/10.1080/13668250310001616407> .

Clunies-Ross, P., Little, E., & Kienhuis, M. (2008). Self-reported and actual use of proactive and reactive classroom management strategies and their relationship with teacher stress and student behaviour. *Educational Psychology*, *28*, 693-710. doi: 10.1080/01443410802206700.

Conroy, D. E., Hyde, A. L., Doerksen, S. W., & Riberio, N. F. (2010). Implicit attitudes and explicit motivation prospectively predict physical activity. *Annals of Behavioral Medicine*, *39*, 112-118. <http://dx.doi.org/10.1037/a0031629>.

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: toward better conceptualizations and measures. *Educational Researcher*, *38*, 181-199. doi: 10.3102/0013189X08331140.

Do-Yeong, K. (2003). Voluntary controllability of the implicit association test (IAT). *Social Psychology Quarterly*, *66*, 83-96. doi: 10.2307/3090143.

Dovidio, J. F., & Fazio, R. H. (1992). New technologies for the direct and indirect assessment of attitudes. In J. Tanur (Ed.) *In questions About questions: Inquiries into the cognitive bases of surveys*. pp. 204–37. New York: Sage.

Dovidio, J., Kawakami, K., & Beach, K. (2001). Implicit and explicit attitudes: Examination of the relationship between measures of intergroup bias. In R. Brown & S. L. Gaertner (Eds.), *Handbook of social psychology* (pp. 175–197). Oxford, UK: Blackwell.

- Dovidio, J. F., Kawakami, K., & Gaertner, S. L. (2002). Implicit and explicit prejudice and interracial interaction. *Journal of Personality and Social Psychology, 82*, 62–68. doi: 10.1037//0022-3514.82.1.62.
- Dovidio, J., Kawakami, K., Johnson, C., Johnson, B., & Howard, A. (1997). The nature of prejudice: Automatic and controlled processes. *Journal of Experimental Social Psychology, 33*, 510–540. doi:10.1006/jesp.1997.1331.
- Egloff, B., & Schmukle, S. C. (2002). Predictive validity of an implicit association test for assessing anxiety. *Journal of Personality and Social Psychology, 83*, 1441–1455. doi: 10.1037//0022-3514.83.6.1441.
- Elliott, M. A., Lee, E., Robertson, J. S., & Innes, R. (2015). Evidence that attitude accessibility augments the relationship between speeding attitudes and speeding behavior: A test of the MODE model in the context of driving. *Accident Analysis & Prevention, 74*, 49-59. <http://dx.doi.org/10.1016/j.aap.2014.10.007>.
- Engelbrecht, P., Oswald, M., & Eloff, S. E. (2003). Including learners with intellectual disabilities: Stressful for teachers? *International Journal of Disability, Development and Education, 50*, 293-308. doi: 10.1080/1034912032000120462.
- Epton, T., Currie, S., & Armitage, C. J. (2017). Unique effects of setting goals on behavior change: Systematic review and meta-analysis. *Journal of Consulting and Clinical Psychology, 85*, 1182-1198. <http://dx.doi.org/10.1037/ccp0000260>.
- Farrell, P. (2000). The impact of research on developments in inclusive education. *International Journal of Inclusive Education, 4*, 153-162. doi: 10.1080/136031100284867.

- Fazio, R. H. (1990). Multiple processes by which attitudes guide behavior: The MODE model as an integrative framework. In M. P. Zanna (Ed.), *Advances in experimental social psychology* (pp. 75–109). New York: Academic.
- Fazio, R. H. (2001). On the automatic activation of associated evaluations: A overview. *Cognition and Emotion, 15*, 115–141. doi:10.1080/0269993004200024.
- Fazio, R. H., Jackson, J. R., Dunton, B. C., & Williams, C. J. (1995). Variability in automatic activation as an unobtrusive measure of racial attitudes: A bona fide pipeline? *Journal of Personality and Social Psychology, 69*, 1013–1027.
<http://dx.doi.org/10.1037/0022-3514.69.6.1013>.
- Fazio, R. H., & Olson, M. A. (2003). Implicit measures in social cognition research: Their meaning and use. *Annual Review of Psychology, 54*, 297–327. doi: 10.1146/annurev.psych.54.101601.145225
- Fazio, R. H., & Roskos-Ewoldsen, D. R. (2005). Acting as we feel: When and how attitudes guide behavior. In T. C. Brock & M. C. Green (Eds.), *The psychology of persuasion* (2nd ed., pp. 41-62). New York: Allyn & Bacon.
- Fazio, R. H., & Towles-Schwen, T. (1999). The MODE model of attitude-behavior processes. In S. Chaiken & Y. Trope (Eds.), *Dual process theories in social psychology* (pp. 97–116). New York: Guilford.
- Forlin, C., Sharma, U., & Loreman, T. (2007). An international comparison of pre-service teacher attitudes towards inclusive education. *Disability Studies Quarterly, 27*. DOI: <http://dx.doi.org/10.18061/dsq.v27i4.53>.

- Freise, M., Bluemke, M., & Wänke, M. (2007). Predicting voting behavior with implicit attitude measures: The 2002 German Parliamentary Election. *Experimental Psychology*, *54*, 247–255. doi: 10.1027/1618-3169.54.4.247.
- Gething, L., & Wheeler, B. (1992). The interaction with disabled persons scale: A new Australian instrument to measure attitudes towards people with disabilities. *Australian Journal of Psychology*, *44*, 75–82. <https://doi.org/10.1080/00049539208260146>.
- Goodall, C., & Slater, M. (2010). Automatically-activated attitudes as mechanisms for message effects: The case of alcohol advertisements. *Communication Research*, *37*, 620–643. doi: 10.1177/0093650210374011.
- Great Britain Parliament. (1995). Disability Discrimination Act. London: HMSO
- Greenwald, A. G., & Banaji, M. R. (1995). Implicit social cognition: Attitudes, self-esteem, and stereotypes. *Psychological Review*, *102*, 4–27.
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring individual differences in implicit cognition: The implicit association test. *Journal of Personality and Social Psychology*, *74*, 1464-1480. <http://dx.doi.org/10.1037/0022-3514.74.6.1464>.
- Greenwald, A. G., Noesk, B., & Banaji, M. R. (2003). Understanding and using the implicit association test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology*, *85*, 197–216. doi: 10.1037/0022-3514.85.2.197.
- Greenwald, A. G., Poehlman, T. A., Uhlmann, E. L., & Banaji, M. R. (2009). Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. *Journal of Personality and Social Psychology*, *97*, 17-41. doi: 10.1037/a0015575.

- Hein, S., Grumm, M., & Fingerle, M. (2011). Is contact with people with disabilities a guarantee for positive implicit and explicit attitudes? *European Journal of Special Needs Education, 26*, 509-522. doi: 10.1080/08856257.2011.597192.
- Hempell, I. S., Buck, N. M. L., Goesthals, K. R., & van Marle, H. J. C. (2012). Unraveling sexual associations in contact and noncontact child sex offenders using the single category–implicit association test. *Sexual Abuse, 25*, 444–460. doi: 10.1177/1079063212464660.
- Hofmann, W., Gawronski, B., Gschwendner, T., Le, H., & Schmitt, M. (2005). A meta-analysis on the correlation between the implicit association test and explicit self-report measures. *Personality and Social Psychology Bulletin, 31*, 1369-1385. doi: 10.1177/0146167205275613
- Hornstra, L. Dennessen, E. Bakker, J. Van den Bergh, L. & Voeten, M. (2010). Teacher attitudes toward dyslexia: Effects on teacher expectations and the academic achievement of students with dyslexia. *Journal of Learning Disabilities, 43*, 515-529. doi: 10.1177/0022219409355479.
- Jeong, M., & Block, M. E. (2011). Physical education teachers' beliefs and intentions toward teaching students with disabilities. *Research Quarterly for Exercise and Sport, 82*, 239-246. <http://dx.doi.org/10.1080/02701367.2011.10599751>
- Jordan, A., Glenn, C., McGhie-Richmond, D. (2010). The Supporting Effective Teaching (SET) project: The relationship of inclusive teaching practices to teachers' beliefs about disability and ability, and about their roles as teachers. *Teaching and Teacher Education, 26*, 259–266. doi:10.1016/j.tate.2009.03.005.
- Jordan, A., & McGhie-Richmond, D., (2014). Identifying effective teaching practices in inclusive classrooms In T. Loreman & C. Forlin (Eds). *Measuring Inclusive*

Education International Perspectives on Inclusive Education, (pp. 135-165). Bingley, UK: Emerald Group Publishing Limited.

Karpinski, A., & Steinman, R. B. (2006). The single category implicit association test as a measure of implicit social cognition. *Journal of Personality and Social Psychology*, *91*, 16–32. <http://dx.doi.org/10.1037/0022-3514.91.1.16>.

Kelly, A., Barnes-Holmes, D. (2013). Implicit attitudes towards children with autism versus normally developing children as predictors of professional burnout and psychopathology. *Research in Developmental Disabilities*, *34*, 17–28. doi: 10.1016/j.ridd.2012.07.018.

Kiely, M. T., Brownell, M. T., Lauterbach, A. A., & Benedict, A. E. (2014). *Teachers' beliefs about students with special needs and inclusion*. In Fives, H., & Gill, M. G., (Eds.) *Handbook of research on teacher beliefs*, pp. 475–491. New York: Routledge.

Klassen, R. M., & Chiu, M. M. (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology*, *102*, 741–756. <http://dx.doi.org/10.1037/a0019237>.

Klassen, R. M., Tze, V. M. C., Betts, S. M., & Gordon, K. A. (2011). Teacher efficacy research 1998–2009: Signs of progress or unfulfilled promise? *Educational Psychology Review*, *23*, 21–43. doi:10.1007/s10648-010-9141-8.

Kumar, R., Karabenick, S. A., & Burgoon, J. N. (2015). Teachers' implicit attitudes, explicit beliefs, and the mediating role of respect and cultural responsibility on mastery and performance-focused instructional practices. *Journal of Educational Psychology*, *107*, 533-545. <http://dx.doi.org/10.1037/a0037471>.

- Kurth, J. A., & Keegan, L. (2012). Development and use of curricular adaptations for students receiving special education services. *Journal of Special Education, 48*, 191–203. doi:10.1177/0022466912464782.
- Lawrenz, F., Huffman, D., & Robey, J. (2003). Relationships among student, teacher and observer perceptions of science classrooms and student achievement. *International Journal of Science Education, 25*, 409-420. doi: 10.1080/09500690210145800.
- Lindsay, G. (2007). Educational psychology and the effectiveness of inclusive education/mainstreaming. *British Journal of Educational Psychology, 77*, 1–24. doi: 10.1348/000709906X156881.
- Mahat, M. (2008). The development of a psychometrically-sound instrument to measure teachers' multidimensional attitudes toward inclusive education. *International Journal of Special Education, 23*, 82-92.
- Markova, M., Cate, I. P., Krolak-Schwerdt, S., & Glock, S. (2015): Preservice teachers' attitudes toward inclusion and toward students with special educational needs from different ethnic backgrounds. *The Journal of Experimental Education, 84*, 554-578. doi: 10.1080/00220973.2015.1055317.
- McConnell, A. R., & Leibold, J. M. (2001). Relations among the implicit association test, discriminatory behavior, and explicit measures of racial attitudes. *Journal of Experimental Social Psychology 37*, 435–442.
<http://dx.doi.org/10.1006/jesp.2000.1470>.
- Mencap (2018). What is a learning disability? Accessed 23/01/2014 from <http://www.mencap.org.uk/definition>.

- Morris, D. B., Usher, E. L., & Chen, J. A. (2016). Reconceptualizing the sources of teaching self-efficacy: A critical review of emerging literature. *Educational Psychology Review*, DOI 10.1007/s10648-016-9378-y.
- Muijs, D. (2006). Measuring teacher effectiveness: Some methodological reflections, educational research and evaluation. *An International Journal on Theory and Practice*, 12, 53-74. doi: 10.1080/13803610500392236.
- Nario-Redmond, M. R., Gospodinov, D., & Cobb, A. (2017, March 13). Crip for a day: The unintended negative consequences of disability simulations. *Rehabilitation Psychology*, 62, 324-333. doi: 10.1037/rep0000127.
- No Child Left Behind (NCLB) Act of 2001, 20 U.S.C.A. § 6301
- Nosek, B. A. (2005). Moderators of the relationship between implicit and explicit evaluation. *Journal of Experimental Psychology*, 134, 565-584. <http://dx.doi.org/10.1037/0096-3445.134.4.565>.
- Nosek, B. A., Greenwald, A. G., & Banaji, M. R. (2007a). The implicit association test at age 7: A methodological and conceptual review. In J. A. Bargh (Ed.), *Automatic processes in social thinking and behavior* (pp. 265–292). New York: Psychology Press.
- Nosek, B. A., Hawkins, C. B., & Frazier, R. S. (2011). Implicit social cognition: From measures to mechanisms. *Trends in Cognitive Sciences*, 15, 152-159. doi: 10.1016/j.tics.2011.01.005.
- Nosek, B. A., Smyth, F. L., Hansen, J. J., Devos, T., Lindner, N. M., Ranganath, K. A., Smith, C. T., Olson, K. R., Chugh, D., Greenwald, A. G., & Banaji, M. R. (2007b).

- Pervasiveness and correlates of implicit attitudes and stereotypes. *European Review of Social Psychology*, 18,36–88. doi: 10.1080/10463280701489053.
- Paquin, R. S., & Keating, D. M. (2016). Fitting identity in the reasoned action framework: A meta-analysis and model comparison, *The Journal of Social Psychology*, 157, 47-63, doi: 10.1080/00224545.2016.1152217.
- Penke, L., Eichstaedt, J., & Asendorpf, J. B. (2006). Single-attribute implicit association tests (SA-IAT) for the assessment of unipolar constructs the case of sociosexuality. *Experimental Psychology*, 53, 283–291. doi: 10.1027/1618-3169.53.4.283.
- Perugini, M. (2005). Predictive models of implicit and explicit attitudes. *British Journal of Social Psychology*, 44, 29–45. doi:10.1348/014466604X23491.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88, 879-903. doi: 10.1037/0021-9010.88.5.879.
- Poulou, M. (2007). Personal teaching efficacy and its sources: Student teachers' perceptions. *Educational Psychology*, 27, 191-218. doi:10.1080/01443410601066693.
- Prast, E. J., Van de Weijer-Bergsma, E., Kroesbergen, E. H., & Van Luit, J. E. H. (2015). Readiness-based differentiation in primary school mathematics: expert recommendations and teacher self-assessment. *Frontline Learning Research*, 3, 90-116. <http://dx.doi.org/10.14786/flr.v3i2.163>.
- Pruett, S. R., & Chan, F., (2006).The development and psychometric validation of the Disability Attitude Implicit Association Test. *Rehabilitation Psychology*, 51, 202-213. <http://dx.doi.org/10.1037/0090-5550.51.3.202>

Project Implicit (2011). Implicit social cognition. Retrieved from

<https://www.projectimplicit.net/index.html>.

Roy, A., Guay, F., & Valois, P. (2013). Teaching to address diverse learning needs: development and validation of a differentiated instruction scale. *International Journal of Inclusive Education, 17*, 1186-1204. doi:10.1080/13603116.2012.743604.

Roy, A., Guay, F., Valois, P. (2015). The big-fish–little-pond effect on academic self-concept: The moderating role of differentiated instruction and individual achievement. *Learning and Individual Differences, 42*, 110–116.
<http://doi.org/10.1016/j.lindif.2015.07.009>.

Rudman, L. A. (2004). Social justice in our minds, homes, and society: The nature, causes, and consequences of implicit bias. *Social Justice Research, 17*, 129–142.

Rudman, L. A. (2011). *Implicit measures for social and personality psychology*. London: SAGE Publications.

Sabin, J. A., Marini, M., & Nosek, B. A. (2012). Implicit and explicit anti-fat bias among a large sample of medical doctors by BMI, race/ethnicity and gender. *PLOS One*,
<https://doi.org/10.1371/journal.pone.0048448>

Scanlon, G., & Barnes-Holmes, Y. (2013). Changing attitudes: Sporting teachers in effectively including students with emotional and behavioural difficulties in mainstream education. *Emotional and Behavioural Difficulties, 18*, 374-395. doi: 10.1080/13632752.2013.769710.

Scottish Parliament. (2000). *Standards in Scotland's Schools etc. Act*. Edinburgh: HMSO.

Scottish Parliament. (2000). *The Education (Scotland) Act*. Edinburgh: HMSO

Scottish Parliament. (2002). *Disability Strategies and Pupils' Educational Records Act*.

Edinburgh: HMSO

Scottish Parliament. (2004). *Education (Additional Support for Learning) (Scotland) Act*,

Edinburgh: HMSO.

Scottish Parliament. (2009). *Education (Additional Support for Learning) (Scotland) Act*,

Edinburgh: HMSO.

Scottish Parliament. (2016). *Education (Scotland) Act*. Edinburgh: HMSO

Shields, N., & Taylor, N. F. (2014). Contact with Young Adults with Disability Led to a

Positive Change in Attitudes toward Disability among Physiotherapy Students.

Physiotherapy Canada, 66, 298–305.

Siegel, J. T., Navarro, M. A., Tan, C. N., & Hyde, M. K. (2014). Attitude-behavior

consistency, the principle of compatibility, and organ donation: A classic innovation.

Health Psychology, 33, 1084-1091. doi: 10.1037/hea0000062.

Smith, E. R., & DeCoster, J. (2000). Dual-process models in social and cognitive psychology:

Conceptual integration and links to underlying memory systems. *Personality and*

Social Psychology Review, 4, 108-131.

https://doi.org/10.1207/S15327957PSPR0402_01.

Spence, A., & Townsend, E. (2007). Predicting behaviour towards genetically modified food

using implicit and explicit attitudes. *British Journal of Social Psychology*, 46, 437-

457. doi: 10.1348/014466606X152261.

Stanec, A. D. S. (2009). The theory of planned behaviour: Predicting teachers' intentions and

behaviour during fitness testing. *Journal of Teaching in Physical Education*, 28, 255-

271.

Stanovich, K. E. (2004). Balance in psychological research: The dual process perspective:

Comment. *Behavioral and Brain Sciences*, 27, 357–358.

<http://dx.doi.org/10.1017/S0140525X0453008X>.

Tait, K., & Purdie, N. (2000). Attitudes towards disability: Teacher education for inclusive environments in an Australian university. *International Journal of Disability,*

Development and Education, 47, 25–38. <http://dx.doi.org/10.1080/103491200116110>.

The British Psychological Society Division of Clinical Psychology Special Interest Group

(Learning Disabilities; 2000). *Learning Disability: Definitions and Contexts*.

Leicester: Author.

Thomas, A., Doyle, A., & Vaughn, D. (2007). Implementation of a computer based implicit association test as a measure of attitudes toward individuals with disabilities. *Journal*

of Rehabilitation, 73, 3-14.

Thomas, A., Palmer, J. K., Coker-Juneau, C. J., & Williams, D. J. (2003). Factor structure and construct validity of the Interaction with Disabled Persons scale. *Educational and*

Psychological Measurement, 63, 465-483.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education*, 17, 783–805.

[http://dx.doi.org/10.1016/S0742-051X\(01\)00036-1](http://dx.doi.org/10.1016/S0742-051X(01)00036-1).

UNESCO (1994). *The UNESCO Salamanca Statement and framework for action on special needs education*. Paris: UNESCO.

UN General Assembly (2006). *Convention on the Rights of Persons with Disabilities*.

A/RES/61/106, Annex I, available at:

<https://www.refworld.org/docid/4680cd212.html> [accessed 17 July 2019]

- Van de Mortel, T. F. (2008). Faking it: Social desirability response bias in self-report research. *Australian Journal of Advanced Nursing*, 25, 40-48.
- Van den Bergh L, Denessen E, Hornstra L, Voeten M, & Holland R. W. (2010). The implicit prejudiced attitudes of teachers: Relations to teacher expectations and the ethnic achievement gap. *American Educational Research Journal*, 47, 497–527. doi: 10.3102/0002831209353594.
- Vaughn, E. D., Thomas, A., & Doyle, A. L. (2011). The multiple disability implicit association test: Psychometric analysis of a multiple administration IAT measure. *Rehabilitation Counselling Bulletin*, 54, 223–235. doi: 10.1177/0034355211403008.
- White, R. (2007). Characteristics of classroom teachers which contribute to their professional growth in implementing inclusive practices. Unpublished M.A. Thesis, University of Toronto.
- Wigboldus, D. H. J., Holland, R. W., & van Knippenberg, A. (2004). Single target implicit associations. Unpublished manuscript.
- Wilson, M. C., & Scior, K. (2014). Attitudes towards individuals with disabilities as measured by the implicit association test: A literature review. *Research in Developmental Disabilities*, 35, 294–321. doi: 10.1016/j.ridd.2013.11.003.
- Wilson, M. C., & Scior, K. (2015). Implicit attitudes towards people with intellectual disabilities: Their relationship with explicit attitudes, social distance, emotions and contact. *PLoS ONE* 10, e0137902. doi:10.1371/journal.pone.0137902.
- Wilson, T., D., Lindsay, S., & Schooler, T. Y. (2000). A model of dual attitudes. *Psychological Review*, 107, 101-126. <http://dx.doi.org/10.1037/0033-295X.107.1.101>.

Wolters, C. A., & Daugherty, S. G. (2007). Goal structures and teachers' sense of efficacy:

Their relation and association to teaching experience and academic level. *Journal of Educational Psychology, 99*, 181–193. doi: 10.1037/0022-0663.99.1.181.

Wyants, S. A., & Dennis, J. M. (2017). Embracing diversity and accessibility: A mixed

methods study of the impact of an online disability awareness program. *Journal of Postsecondary Education and Disability, 30*, 33-48 2017

Yan, Z., & Sin, K. (2014). Inclusive education: teachers' intentions and behaviour analysed

from the viewpoint of the theory of planned behaviour. *International Journal of Inclusive Education, 18*, 72-85. <http://dx.doi.org/10.1080/13603116.2012.757811>.

Yan, Z., & Sin, K. (2015). Exploring the intentions and practices of principals regarding

inclusive education: an application of the theory of planned behaviour. *Cambridge Journal of Education, 45*, 205-221. <http://dx.doi.org/10.1080/0305764X.2014.934203>.