School environment and mastery experience as predictors of teachers' self-efficacy beliefs

towards inclusive teaching.

Claire Wilson, University of Strathclyde

Lisa Marks Woolfson, University of Strathclyde.

Kevin Durkin, University of Strathclyde.

Correspondence:

Dr Claire Wilson

University of the West of Scotland

Paisley, UK, PA1 2BE.

Email: claire.wilson@uws.ac.uk

Abstract

Teacher self-efficacy plays a key role in the successful inclusion of children with intellectual disabilities in mainstream schools. But what influences self-efficacy and how can we support its growth? Drawing on Social Cognitive Theory, the study examined teachers' mastery experiences, perceptions of the school environment, self-efficacy and reported inclusive teaching. The sample comprised 148 primary school teachers from Scottish mainstream schools. Participants completed questionnaires measuring mastery experiences, the school environment (collective efficacy and school climate perceptions), self-efficacy and reported inclusive teaching practices. Regression analyses demonstrated that school environment (collective efficacy and school climate), and mastery experiences were important in predicting teachers' self-efficacy. Further, self-efficacy acted as a mediator between teachers' perceptions of the school climate and reported inclusive behaviour. This brings us closer to understanding how teacher self-efficacy is fostered and the role of the school environment. Engaging with teacher belief systems may cultivate a school climate that promotes inclusion.

Key words: Inclusion; teacher self-efficacy; mastery experience; school climate.

Inclusion is a goal that aims to increase the acceptance and participation of all children, including those with intellectual disabilities (ID), within mainstream education (Williams, Johnson, & Sukhodolskya, 2005). Although policy mandates inclusion, it is classroom teachers who determine its success. Teachers' self-efficacy beliefs play a key role in the success of inclusion (Sharma, Loreman, & Forlin, 2012; Woolfson & Brady, 2009). Originating from Bandura's Social Cognitive Theory (SCT), self-efficacy is a future-oriented belief relating to the individual's confidence and perceived ability to perform a given behaviour (Bandura, 1992, 1993, 1994, 1997). That is, how competent the individual feels they are with regards to performing a particular behaviour. Self-efficacy for teachers is therefore a belief relating to confidence and perceived ability to provide academic instruction and create a positive learning environment (Bandura, 1986, 1994, 1997).

Such beliefs impact the goals teachers set, time spent planning and willingness to experiment with teaching methods (Klassen, Tze, Betts, & Gordon, 2011; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998). In relation to inclusion, teachers' self-efficacy influences the likelihood that they will make essential classroom adaptations, such as modifying curricular content or altering how content is taught (De Boer, Pijl, & Minnaert, 2011; Wilson, Woolfson, Durkin, & Elliott, 2016). Given that self-efficacy beliefs have been found to predict inclusive teaching, it is therefore crucial to understand what influences these beliefs.

Research has demonstrated the importance of teacher self-efficacy as a unidimensional construct in its prediction of behaviour (Gibson, & Dembo, 1984; Klassen, &

Chiu, 2010). The dominant view, however, is that the variable comprises a number of sub-

scales (Tschannen-Moran & Woolfolk Hoy, 2001): instructional strategies self-efficacy,

classroom management efficacy and student engagement efficacy. Instructional strategies

self-efficacy relates to individuals' beliefs that they can design and implement activities to

aid learning. Classroom management self-efficacy refers to perceived ability to maintain an

orderly and organised classroom. Student engagement self-efficacy concerns competence

beliefs in ensuring students are involved and motivated. It is unclear what influences each

sub-type and whether these have different effects on behaviour.

Further, research examining predictors of teachers' self-efficacy is sparse (Klassen et

al., 2011). SCT argues that human functioning is the product of a dynamic interplay of

personal, behavioural, and environmental influences. SCT argues that the environment

influences behaviour indirectly through psychological mechanisms. Drawing on this theory,

then, it may be that the school working environment plays a role in teachers' self-efficacy

beliefs (i.e. psychological mechanisms) and these beliefs in turn, impact behaviour. Indeed,

school environmental factors such as feedback, support and interaction with other staff

members have been found to influence the formation of self-efficacy (Bandura, 2012;

Klassen & Tze, 2014; Pas, Bradshaw, & Hershfeldt, 2012; Tschannen-Moran et al., 1998).

However, given the reciprocal nature of the relationship between personal,

environmental and behavioural factors, it may be that performance of the behaviour also

predicts self-efficacy. For example, Bandura (1994, 1997) argued that having previous

success in enacting a behaviour can enhance self-efficacy beliefs about one's capacity to deliver that behaviour effectively in the future. Successful implementation of behaviour, enacted in response to a challenge, has been termed 'mastery experience'. Mastery experience may therefore be another important source of teacher self-efficacy towards children with ID. These will now be discussed.

School Climate and Teacher Efficacy

The school's working environment encompasses the various elements of an educational institution's culture that define its values, beliefs and operations. Specifically, we focus here on two key aspects: school climate and collective efficacy. Both school climate and collective efficacy have been found to impact teachers' self-efficacy. Little research, however, has examined the impact of school climate and collective efficacy on teachers' self-efficacy towards working with children with ID.

School Climate. School climate concerns the overall feeling within the institution incorporating beliefs regarding interpersonal relationships within the school, teaching practices, organisational norms and values (Hoy & Miskel, 1987; Kohl, Recchia, & Steffgen, 2013). A positive school climate is one in which management, teaching, other staff and children work together in harmony (Hoy, Tarter, & Kottkamp, 1991). Hoy et al. (1991) argued that school climate comprises a number of factors: institutional integrity (the school's ability to maintain educational integrity and protect staff from unrealistic community demands); principal teacher's leadership (a leader who is supportive, but also encourages

high performance); resource influence (teachers are given adequate classroom supplies and

extra instructional materials are easily obtained); teacher affiliation (sense of community

between teachers); academic emphasis (school's push for achievement and expresses

attainable goals for students).

School climate, such as the principal teacher's leadership, relationships between

teachers and the school's academic emphasis, have been shown to influence teachers' overall

self-efficacy towards teaching and coping with student behaviour (Brownell & Pajares, 1999;

Collie, Shapka, & Perry, 2012; Hosford, & O'Sullivan, 2015; Hoy & Woolfolk, 1993;

Meristo & Eisenschmidt, 2014; O'Toole & Burke, 2013; Pas et al., 2012; Tschannen-Moran

& Woofolk Hoy, 2001; Weisel & Dror, 2006). Further, teachers are more likely to

differentiate instruction (i.e., tailor teaching to accommodate children of different abilities)

when they believe that this is fostered by the school climate (Roy, Guay, & Valois, 2013).

Among these studies, only Meristo and Eisenschmidt (2014) examined the relation between

school climate and self-efficacy sub-scales. Results showed that each measure was related to

the school's academic growth. Teachers who believed that colleagues looked for ways to

improve teaching had higher levels of instructional strategies, classroom management and

student engagement efficacy. However, no studies have examined the impact of school

climate variables on the sub-scales of self-efficacy towards children with ID.

Collective Efficacy. Another element of school environment is collective efficacy.

While self-efficacy which relates to beliefs about the self, collective efficacy relates to

6

perceptions regarding the ability of a group as a whole (Bandura, 1986, 1994). In the present context, this concerns staff perceptions about competency of the school, i.e., what teachers believe about the capabilities of their school staff as a group, rather than their beliefs in themselves individually. Collective efficacy is also associated with task performance and student achievement and it can impact teachers' self-perceptions (Goddard, 2002; Goddard & Goddard, 2001; Goddard, Tschannen-Moran, & Barr, 2004). In short, collective self-efficacy can be expected to impact on teachers' beliefs regarding their ability to work inclusively with learners with ID.

Mastery Experience

In line with SCT, it is also important to consider the role of previous behaviour on self-efficacy. Mastery experience relates to the individual experiencing success in a previous performance of a challenging task (Bandura, 1997). Research has demonstrated that mastery experience is important to teacher engagement (Han, Yin, & Wang, 2016) and self-efficacy (Tschannen-Moran & McMaster, 2009; Tschannen-Moran, & Woofolk Hoy, 2007). Perceptions of successful past performance lead to increased self-efficacy beliefs, whereas perceptions of failure lead to a decrease in self-efficacy beliefs. However, these studies have not examined mastery with respect to self-efficacy towards teaching children with ID specifically.

Aims and Hypotheses

Drawing on SCT, we examined whether school working environment variables
(school climate perceptions and collective efficacy) and mastery experience could predict
teacher self-efficacy in relation to using inclusive practise for children with ID. We focused
specifically on inclusion of children with ID because previous research has found teacher
self-efficacy to be an important factor in the successful inclusion of this group of learners
(Wilson et al., 2016). We assessed teacher self-efficacy sub-scales (instructional strategies,
classroom management and student engagement), collective efficacy, school climate
perceptions and mastery experience. We also measured teachers' reports of inclusive
behaviours to test the relationship between this and self-efficacy. The aims of the study were:

1. To identify relationships among mastery experiences, school climate
   perceptions, collective efficacy and teacher self-efficacy sub-scales in relation to
   teaching children with ID.
2. To assess the relationship between teacher self-efficacy sub-scales and reported
   inclusive behaviour.
3. To examine the mediating role of teacher self-efficacy sub-scales in the
   relationship between mastery experience and reported behaviour and between
   perceptions of the school environment (collective efficacy and school climate)
   on reported behaviour.

Figure 1 shows the predicted relationships based on SCT. We expected that mastery
experience and the school environment (collective efficacy and school climate perceptions)

8

would predict self-efficacy towards working with children with ID given that previous

research has shown these variables to be important in predicting teachers' self-efficacy in

other contexts. We also hypothesized that self-efficacy would predict the use of inclusive

teaching strategies. Finally, it was expected that self-efficacy would mediate the relationship

between mastery experiences, collective efficacy, school climate perceptions and reported

inclusive behaviour.

[Figure 1 about here]

Method

Sample

Data were collected from 148 general classroom primary teachers (93% female) from

mainstream schools in Scotland. This sample size is based on Tabachnick and Fidell's (2007,

2013) participant calculation relevant to multiple linear regression analyses (suggested

sample size of 130) and a priori power analysis carried out using G* Power 3.1 (suggested

sample size of 118) (Faul, Erdfelder, Buchner, & Lang, 2009; Faul, Erdfelder, Lang, &

Buchner, 2007). Age ranged from 22 to 65 years (M=37.04, S.D=11.37). The mean length of

teaching experience was 12.68 years (SD=10.55). This ranged from participants with 1 years'

experience to participants with 39 years' experience.

Measures

Teacher self-efficacy. The Teachers' Sense of Efficacy Scale (Tschannen-Moran &

Woolfolk, 2001) measured teachers' self-efficacy towards including children with ID. This is

a widely used measure of teacher self-efficacy (Klassen, & Chiu, 2010; MacFarlane &

Woolfson, 2013; Poulou, 2007; Tschannen-Moran, & McMaster, 2009). The 12-item version

was used to minimize the time demands on participants. The measure contains three

subscales (instructional strategies efficacy beliefs, classroom management efficacy, student

engagement efficacy). Minor adaptations were made to the scale to measure self-efficacy

specifically towards working with children with ID. Instructional strategies efficacy beliefs

were measured using four items (α=.84 for the present administration). An example item is:

"To what extent can you use a variety of assessment strategies for children with ID?" Four

items measured classroom management efficacy (α=.88). An example item is: "How much

can you do to get a child with ID to follow classroom rules?" Finally, four items assessed

student engagement efficacy (α= .84). An example item is: "How much can you do to get a

student with ID to believe they can do well in schoolwork?" Participants responded to items

using a 9-point Likert scale ranging from '*nothing at all'* to 'a *great deal'*. A principal axis

factor analysis supported the separation of the three self-efficacy sub-scales.

Collective efficacy. The 12-item Collective Teacher Belief Scale (Tschannen-Moran

& Barr, 2004) measured teachers' collective efficacy beliefs. Again, we adapted this measure

to ensure items only related to children with ID. It comprises two subscales: instrumental

strategies (e.g., " How much can teachers in your school do to produce meaningful student

learning for a child with ID?") and student discipline (e.g., "To what extent can school

10

personnel in your school establish rules and procedures that facilitate learning for a child with

ID?"). The current study adapted items to obtain efficacy views relating to teaching children

with ID. Participants responded using a 9-point Likert scale ranging from '*nothing at all*' to

'a *great deal*'. A principal axis factor analysis indicated the existence of one collective

efficacy factor. For this reason, a total collective efficacy score was used (α=.94).

School climate. The Organizational Health Inventory Elementary (OHI-E; Hoy et al.,

1991) was used to measure teachers' school climate perceptions. The instrument contains five

subscales: institutional integrity was measured by six items (α=.67); principal teacher's

leadership was measured using ten items (α=.91); resource influence was assessed by seven

items (α=.82); teacher affiliation was measured using nine items (α=.74); academic emphasis

was measured by five items (α=.52) . Research has supported the presence of these

dimensions (Bradshaw, Koth, Bevans, Ialongo, & Leaf, 2008; Brownell & Pajares, 1999;

Hoy & Woolfolk, 1993; Pas et al., 2012). Participants responded to items using a 4-point

Likert scale ranging from '*rarely occurs*' to '*very frequently occurs*'.

A principal axis factor analysis was conducted to investigate the low Cronbach's

alpha for academic emphasis. All academic emphasis items loaded on rotated factor five with

the exception of item six. This item; 'students neglect to complete homework', does not

appear to reflect perceptions of the school's push for achievement but, instead, may reflect

discipline or obedience. Removal of this item increased the reliability slightly. As Cronbach's

alpha (α=.58) was still low (Kline, 1999), caution should be taken when interpreting academic emphasis results.

Mastery experience. Following Tschannen-Moran and Woolfolk Hoy (2007), mastery experience was measured by asking participants to rate their satisfaction with their professional performance when working with children with ID from 1=*poor* to 9=*excellent*.

Inclusive behaviour. Teacher reported behaviour was measured using the Differentiated Instruction Scale (Roy et al., 2013), which 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. Evaluate the effectiveness of teaching adjustments in general education classrooms'). 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. Items were summed to provide an overall inclusive behaviour score (α=.86).

Demographic information. Teachers provided information on their gender, years of experience teaching and if they had completed any inclusive education training.

Procedure

After ethical approval was obtained, questionnaire packs were distributed to 42 schools. Each contained an information sheet, a consent form, the questionnaire and a debrief sheet. Before completing the questionnaire, teachers were informed that including children

with ID related to those who find it difficult to learn, understand new or complex
information, communicate with others and cope independently. Two weeks after the
questionnaires were delivered, schools were contacted to arrange a date to collect completed
questionnaires.

Data Analyses

Correlations were used to look at the initial relationships between variables.
Regression analyses tested whether teachers' school environment perceptions (collective
efficacy and school climate) and mastery experience predicted self-efficacy. Regression
analysis also examined the impact of self-efficacy on reported inclusive behaviour. We also
tested whether self-efficacy mediated the relationship between school environment
(collective efficacy and school climate perceptions), mastery experience and reported
inclusive behaviour.

Unit of Analysis. As we were interested in the influence of school environment
perceptions on teacher-level variables (self-efficacy), individual teacher scores were the unit
of analysis, rather than a school level analysis. This strategy is often employed when
examining individual-level outcomes (Brownell & Pajares, 1999; Collie et al., 2012; Hoy &
Woolfolk, 1993). However, hierarchical linear modelling was used to check that school-level
variables (overall school scores on OHI-E and local authority) did not influence teachers'
self- and collective efficacy or reported inclusive behaviour scores. These analyses were not
significant which suggested that there were no relationships between school-level predictors

13

and outcome variables. This coupled with low intra-class correlations suggested multilevel analyses would not yield different results from a non-multilevel analysis.

Results

Descriptive statistics. Table 1 shows means, standard deviations, and correlation coefficients. Self-efficacy sub-scales (classroom management, instructional strategies and student engagement efficacy) were significantly correlated with collective efficacy, perceptions of the overall school climate and mastery experience. Self-efficacy sub-scales were positively correlated with perceptions of principal teacher's leadership, resource influence and academic emphasis. Only instructional strategies efficacy was significantly correlated with teacher affiliation. Collective efficacy was correlated with each school climate factor. Only instructional strategies efficacy and collective efficacy showed significant relationships with reported inclusive behaviour.

[Table 1 about here]

Predicting Self-Efficacy

To identify predictors of teacher self-efficacy sub-scales, a regression analysis was used. Demographic variables (years of teaching experience and if the individual had received special education training) were entered at Step 1. Mastery experience was added at Step 2, as previous research has found this to be an important predictor of self-efficacy (Tschannen-Moran & McMaster, 2009; Tschannen-Moran, & Woofolk Hoy, 2007). Collective efficacy

14

and school climate factors (institutional integrity, principal teacher leadership, teacher affiliation, resource influence and academic emphasis) were added at Step 3.

Classroom management self-efficacy. The results showed (see Table 2a) that at Step 1, demographic variables accounted for a statistically significant proportion of the variance (R^2=.05, p=.023); however, no variable had a significant independent effect on classroom management efficacy. When mastery experience was added to the regression equation, this resulted in a significant increase to R^2 (R^2=.20, R^2_{change}=.15, p<.001). Only mastery experience was a significant predictor of classroom management self-efficacy (β=.40 p<.001) at this stage. The inclusion of collective efficacy and school climate factors to the regression equation, resulted in a significant increase to R^2 (R^2=.44, R^2_{change}=.24, p<.001). Mastery experience (β=.16 p=.037) and collective efficacy (β=.51 p<.001) significantly predicted teachers' classroom management self-efficacy. Teachers with higher levels of mastery experience and those who believed in the capabilities of their colleagues had higher classroom management self-efficacy for working with children with ID.

Instructional strategies self-efficacy. The results showed (see Table 2b) that at Step 1, demographic variables accounted for a statistically significant proportion of the variance (R^2=.05, p= .024). Training predicted instructional strategies efficacy (β=.20 p=.018). Adding mastery experience to the model increased R^2 (R^2=.27, R^2_{change}=.22, p<.001). Only mastery experience (β=.48 p<.001) was a significant predictor of instructional strategies efficacy at this step. School environment variables (collective efficacy and school climate factors)

15

increased R^2 (R^2= .57, R^2change=.30, $p<.001$). At this step, mastery experience (β=.19 $p=.006$), collective efficacy (β=.55 $p<.001$) and academic emphasis (β=.17 $p=.010$) were significant predictors. Teachers who reported more mastery experience, higher collective efficacy and who perceived that the school pushed for achievement reported higher levels of instructional strategies efficacy for working with children with ID.

Student engagement self-efficacy. The results showed (see Table 2c) demographic variables did not account for a statistically significant proportion of the variance (R^2=.04, $p=.055$). When mastery experience was added, this resulted in a significant increase to R^2 (R^2=.15, R^2change=.11, $p<.001$). Mastery experience (β=.33 $p<.001$) was the only significant predictor of student engagement efficacy. Inclusion of the school environment variables resulted in another significant increase to R^2 (R^2=.50, R^2change=.35, $p<.001$). At this step, collective efficacy (β=.61 $p<.001$) and teacher affiliation (β=-.21 $p=.004$) predicted student engagement self-efficacy. Teachers who perceived the staff as a whole to be capable reported higher levels of student engagement efficacy for working with children with ID. Teachers with higher levels of teacher affiliation reported lower levels of student engagement efficacy.

[Table 2a about here]

[Table 2b about here]

[Table 2c about here]

Predicting Inclusive Classroom Behaviour.

16

Regression analysis was next used to test the predictive strength of efficacy beliefs on
teacher reported inclusive behaviour. Demographic variables (years of experience and
training) were entered at Step 1. Self-efficacy sub-scales were added at Step 2 (classroom
management, instructional strategies efficacy, student engagement efficacy). Linearity was
investigated by inspection of residual plots and homoscedasticity was assessed using the
scatterplot. Inspection of these plots suggested that data violated assumptions of linearity and
homoscedasticity. Hence, bias-corrected bootstrap techniques were applied.

At Step 1, demographic variables did not account for a statistically significant
proportion of the variance R^2 (R^2=.01, R^2_{change}=.01, p=.496). When teacher self-efficacy sub-
scales were included, this resulted in a small increase to R^2 (R^2=.08, R^2_{change}=.07, p=.016).
Only instructional strategies efficacy accounted for a proportion of the variance (β=.33 [.03,
.22] p=.009). See Table 3.

[Table 3 about here]

**Self-efficacy as mediator in mastery experience, school environment and
reported behaviour relationship.**

Hayes' (2013) PROCESS macro was used to examine the mediating role of
instructional strategies efficacy in the relationship between mastery experiences, school
environment variables (collective efficacy and school climate perceptions) and reported
inclusive behaviours. Instructional strategies efficacy significantly mediated the relationship
between school climate perceptions and reported behaviour (β=.10, BCa CI [.01, .22]),

17

κ^2=.08, 95% BCa CI [.01, .17]. No other mediating effects were significant. Figure 2 shows the final model predicting teachers' reported inclusive behaviour.

[Figure 2 about here]

Discussion

The study is the first to have used SCT to examine whether school environment perceptions (collective efficacy and climate) and mastery experience predict teachers' self-efficacy towards teaching children with ID. We found that each teacher self-efficacy sub-type (classroom management, instructional strategies and student engagement) was predicted by collective efficacy. Both instructional strategies and classroom management efficacy were also predicted by mastery experience. Further, instructional strategies efficacy was predicted by academic emphasis while student engagement efficacy was negatively predicted by teacher affiliation. Results confirmed the relationship between self-efficacy and inclusive teaching, with instructional strategies efficacy predicting reported behaviour. The relationship between teachers' overall school climate perceptions and reported inclusive behaviour was mediated by instructional strategies efficacy.

In respect of all three self-efficacy sub-scales, we found the school environment variable, collective efficacy, to be an important predictor. This supports research showing collective efficacy predicts variation in teacher self-efficacy (Goddard & Goddard, 2001). Teachers with positive perceptions about the level of competency of the school as a whole

have higher beliefs in their own ability. Social influence is important in the formation of efficacy beliefs; teachers are not socially isolated and are influenced by those around them (Bandura, 1997).

School climate perceptions were also important for self-efficacy. Thus there is a need to understand the importance of the school environment on the development of self-efficacy. Teachers who believed they worked in a positive and supportive school environment were more likely to perceive themselves and colleagues as capable of working with children with ID. This may be a result of a positive school climate promoting a feeling of unity among staff (Bryk & Schneider, 2003). Other studies, though not focused on ID, have similarly reported relationships between school climate perceptions and teacher self-efficacy towards teaching in general (Collie et al., 2012; Hoy & Woolfolk, 1993; Meristo & Eisenschmidt, 2014; Pas et al., 2012; Tschannen-Moran & Woofolk Hoy, 2001), and in teaching children with disabilities (O'Toole & Burke, 2013; Weisel & Dror, 2006). The finding supports SCT in that the environment (collective efficacy and school climate perceptions) played an important role in self-efficacy and extends this support to a new context ,i.e. teachers' self-efficacy for children with ID.

The results indicated that the school climate factor, academic emphasis, predicted instructional strategies efficacy. Teachers who scored high on academic emphasis believed that their school has an expectation of high achievement whereby students work hard and high but achievable goals are set (OHI; Hoy et al., 1991). We found these beliefs were related

to teachers' perceived ability in implementing activities for students with ID. It should be

acknowledged that the academic emphasis scale had low reliability; thus, findings should be

interpreted with caution. Our findings, however, dovetail with those of previous research (Pas

et al., 2012); taken together, the available evidence suggests that the more the school values

achievement, the more teachers will do to provide effective instruction.

We also found that student engagement efficacy was negatively related to teacher

affiliation. Although it should be stressed that this was not a strong effect, it contradicts

research showing teacher relationships are important in helping individual teachers feel

confident (Brownell & Pajares, 1999). Brownell and Pajares's measure of teacher collegiality

included items relating to the exchange of ideas and resources among staff. In the present

study, the measure of teacher affiliation related to trust and friendliness among staff. It may

be that student engagement efficacy is nurtured when focused, practical support is in place

but is potentially undermined if teachers prioritize affective collegial relationships. Given that

collective efficacy had a positive impact on self-efficacy, this suggests that having high

expectations of the staff's ability is more beneficial to self-efficacy than are social

relationships between colleagues. Further research is needed to assess the nature of teacher

relationships and how these impact inclusive beliefs.

In line with SCT, the present study also found support for the importance of mastery

experiences in teachers' self-efficacy (Bandura, 1997; Tschannen et al., 1998; Tschannen-

Moran & McMaster, 2009). Our findings extend this to include efficacy towards working

with children with ID. Teachers look to their past performance in order to determine how capable they view themselves and others in using inclusive teaching strategies. Such a finding highlights the importance of the reciprocal relationship as depicted by SCT between behavioural and personal factors in that teachers make decisions about their perceived ability based on previous performance.

Although mastery experience predicted instructional strategies and classroom management efficacy, it was not a predictor of student engagement efficacy. Both instructional strategies and classroom management efficacy relate to features of the teachers' job that may benefit from mastery experiences. For example, instructional strategies relate to beliefs regarding ability to design and implement activities (Tschannen-Moran & Woolfolk Hoy, 2001). If teachers believe certain strategies have been successful, they can then use this experience to inform practice in future years, thus enhancing instructional efficacy. Similarly, classroom management efficacy refers to ability to maintain an orderly and organised classroom environment (Tschannen-Moran & Woolfolk Hoy, 2001). With experience, teachers may become confident in what classroom strategies work, again, enhancing efficacy in this domain. In contrast, student engagement efficacy concerns beliefs about one's capacity to ensure that students are involved, and motivated to learn (Tschannen-Moran & Woolfolk Hoy, 2001). Mastery experience may be less important to this type of efficacy belief, given that the ways in which this is achieved may depend on the child.

The findings also indicated that instructional strategies efficacy predicted the use of

reported inclusive classroom practices. This extends research demonstrating a link between

self-efficacy and inclusive classroom behaviours (Sharma et al., 2012; Woolfson & Brady,

2009) by identifying instructional strategies efficacy as the most important type of self-

efficacy. This efficacy factor concerns beliefs regarding ability to design activities and

assessments for children with ID, which is perhaps the most relevant to the curricular and

instructional adaptations required for children with ID. Although previous research has

reported a relationship between teachers' school climate perceptions and teaching practices

(e.g., Hoy & Woolfolk, 1993; Pas et al., 2012), no study has examined mediators of this

relationship. We therefore extend this literature to show instructional strategies efficacy

mediated the relationship between school climate perceptions and reported inclusive

behaviour. Positive perceptions of the school climate were related to teachers' beliefs about

instructional strategies and this in turn was related to reports of inclusive teaching.

Implications

This study identifies which dimensions of teacher self-efficacy are most closely

related to inclusive teaching practices and influenced by school climate perceptions. As well

as supporting individual teachers on implementing new classroom practices to meet the needs

of the individual child with ID, the whole school climate should be considered in order to

promote a positive school environment around inclusive teaching practices in schools. The

importance of collective efficacy further suggests the need to support the sharing of ideas

between school staff so that teachers are aware of colleagues' capabilities and communicate high and positive expectations of practice.

The significance of mastery experience also has practical implications. It may be useful to encourage staff to reflect on and discuss past performance of working with children with ID. Where teachers perceive past performance to be unsuccessful, in-school coaching support to allow teachers the opportunity to experience successful performance should be considered. This approach also has implications for pre-service teacher training in that the opportunity to master inclusive teaching strategies should be provided before teachers are expected to implement these successfully in the classroom (Tuchman & Isaacs, 2011). Computer-based simulations that mimic the school environment may provide a less challenging, more supportive way for student teachers to address this learning objective, and then help achieve mastery experiences when faced with the real-life classroom (Christensen, Tyler-Wood, Knezek, & Gibson, 2011).

Limitations

Teacher self-report is recognised as a valuable research tool (Clunies-Ross, Little, & Kienhuis, 2008; Desimone, 2009) with strong relationships between teachers' self-reported and observed behaviour in the classroom being reported elsewhere (Clunies-Ross et al., 2008; Desimone, 2009; Stanec, 2009). However, the use of a common method to measure all variables can increase the possibility of measurement bias. Procedural remedies proposed by

Podsakoff, MacKenzie, Lee, and Podsakoff (2003) were therefore used in the present study to reduce common method variance.

The correlational nature of the study means we cannot determine causality. Bandura (1977, 1996) argued that human behaviour is the product of a continuous reciprocal interaction between cognitive, behavioural, and environmental influences. It may be, then, that school climate influences efficacy beliefs but as efficacy beliefs increase, perceptions of the school climate also are enhanced. Our findings provide additional evidence that social, cognitive and environmental variables need to be incorporated in explanations of variation in teachers' self-efficacy for working with students with ID.

Conclusion

This was the first study to investigate the role of school environment perceptions and mastery experience in teachers' efficacy beliefs towards teaching children with ID. The study demonstrated that self-efficacy is influenced by mastery experiences and the school environment (i.e., collective efficacy and perceptions of the school climate). Specifically, teachers who think highly of the capabilities of the staff as a group, have higher beliefs in their own ability to teach children with ID. Further, the school's push for achievement and the relations between staff also play a role in teachers' self-efficacy in this domain. The study has identified important new areas which should be considered when working with teachers to support effective inclusion of children with ID.

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Table 1: *Bivariate Correlations, Means and Standard Deviations of Measured Variables.*

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	Mean	S.D.
1. CM_SE		.72***	76***	.62***	.09	.28***	.15	.27**	.09	.29***	.21*	.43***	6.88	1.10
2. IS_SE			.70***	.69***	.24**	.41***	.04	.37***	.20*	.39***	.34***	.50***	7.20	1.05
3. SE_SE				.67***	.15	.34***	.05	.34***	.06	.37***	.19*	.35***	6.71	1.17
4. CE					.21*	.43***	.17*	.38***	.26**	.36**	.21*	.45***	6.98	1.05
5. Beh						.23**	-.07	.15	.16	.15	.19*	.31***	4.54	.40
6. Over SC							.32***	.84***	.67***	.75***	.45***	.23*	3.17	.34
7. SC_II								.003	.14	-.01	-.04	-.02	2.72	.55
8. SC_PT									.48***	.67	.28**	.25**	3.41	.55
9. SC_TA										.33***	.30***	.11	3.46	.40
10. SC_RI											.38***	.18*	2.94	.55

33

11. SC_AE	.22**	3.00	.45
12. ME		6.93	.99

***$p<.001$. **$p<.01$. *$p <.05$. CM_SE=Classroom management self-efficacy; IS_SE=Instructional strategies self-efficacy; SE_SE=Student engagement self-efficacy; CE=Collective efficacy; Beh=Inclusive behavior; Over SC=Overall school climate; SC_II=Institutional Integrity; SC_PT=Principal teacher's leadership; SC_TA=Teacher affiliation; SC_RI=Resource influence; SC_AE=Academic Emphasis; ME=Mastery experience.

Table 2a: *Predictors of Classroom Management Self-efficacy*

Step and Predictors	R^2	R^2_{change}	F_{change}	Step 1 β	Step 2 β	Step 3 β
1	.05	.05	3.87[*]			
Years' Exp				-.01	-.04	.02
Training				.22[**]	.14	.12
2	.20	.15	26.54[***]			
Mastery Exp					.40[***]	.16[*]
3	.44	.24	9.49[***]			
CE						.51[***]
SC_II						.08
SC_PT						.01
SC_TA						-.15
SC_RI						.06
SC_AE						.08

[***]$p<.001$, [**]$p<.01$, [*]$p<.05$. Years' Exp=Years of teaching experience; Mastery Exp=Mastery experience; CE=Collective efficacy; SC_II=Institutional Integrity; SC_PT= Principal teacher's leadership; SC_TA=Teacher affiliation; SC_RI=Resource Influence; SC_AE=Academic Emphasis.

Table 2b: *Predictors of Instructional Strategies Self-efficacy*

Step and Predictors	R^2	R^2_{change}	F_{change}	Step 1 β	Step 2 β	Step 3 β
1	.05	.05	3.47*			
Years' Exp				-.08	-.11	-.01
Training				.20*	.10	.07
2	.27	.22	42.18***			
Mastery Exp					.48***	.19**
3	.57	.30	15.72**			
CE						.55***
SC_II						-.03
SC_PT						.03
SC_TA						-.07
SC_RI						.08
SC_AE						.17*

*** $p<.001$, **p<.01, *$p<.05$. Years' Exp=Years of teaching experience; Mastery

Exp=Mastery experience; CE=Collective efficacy; SC_II=Institutional Integrity;

SC_HT= Principal teacher's leadership; SC_TA=Teacher affiliation;

SC_RI=Resource Influence; SC_AE=Academic Emphasis.

Table 2c: *Predictors of Student Engagement Self-efficacy*

Step and Predictors	R^2	R^2_{change}	F_{change}	Step 1 β	Step 2 β	Step 3 β
1	.04	.04	2.97			
Years' Exp				-.10	-.12	.01
Training				.17*	.10	.07
2	.15	.11	17.38***			
Mastery Exp					.33***	.03
3	.50	.35	15.62***			
CE						.61***
SC_II						- .03
SC_PT						.09
SC_TA						-.21*
SC_RI						.12
SC_AE						.05

***p<.001, **p<.01, *p<.05. Years' Exp=Years of teaching experience; Mastery Exp=Mastery experience; CE=Collective efficacy; SC_II=Institutional Integrity; SC_HT= Principal teacher's leadership; SC_TA=Teacher affiliation; SC_RI=Resource Influence; SC_AE=Academic Emphasis.

Table 3: *Predictors of Reported Inclusive Classroom Behavior*

Step and Predictors	R^2	R^2_{change}	F_{change}	Step 1 β	Step 2 β
1	.10	.01	.71		
Years' Exp				.002 (.004, .01)	.003 (.00, .01)
Training				.08 (-.06, .21)	.05 (-.09, .20)
2	.28	.08	3.55*		
CM_SE					-.08 (-.18, .13)
IS_SE					.12* (.03, .22)
SE_SE					.03 (-.06, .12)

***$p<.001$, **$p<.01$, *$p <.05$. Years' Exp=Years of teaching experience; CM_SE=Classroom management efficacy; IS_SE=Instructional strategies efficacy; SE_SE=Student engagement efficacy.
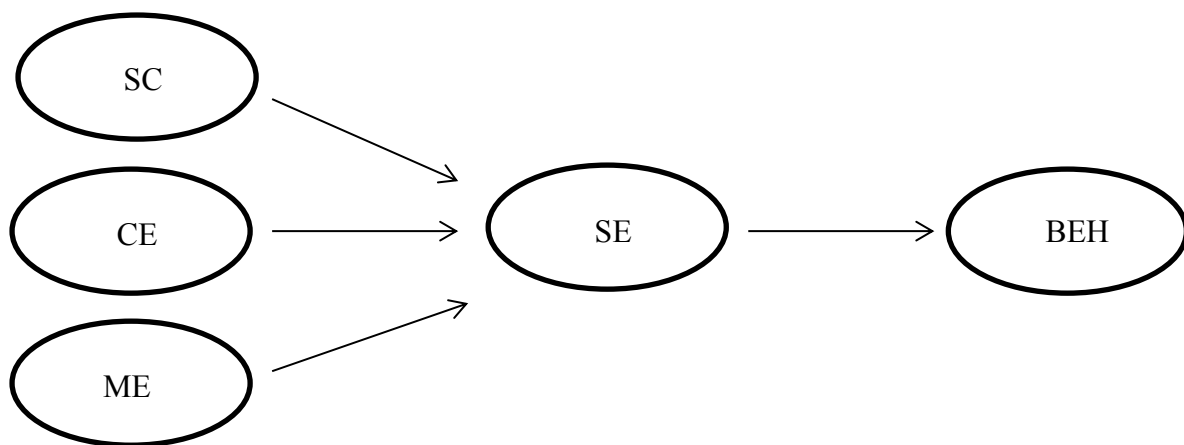
Figure 1: Proposed model. SC=School climate perceptions; CE=collective efficacy;

ME=Mastery experience; SE=Self-efficacy subtypes (instructional strategies, classroom

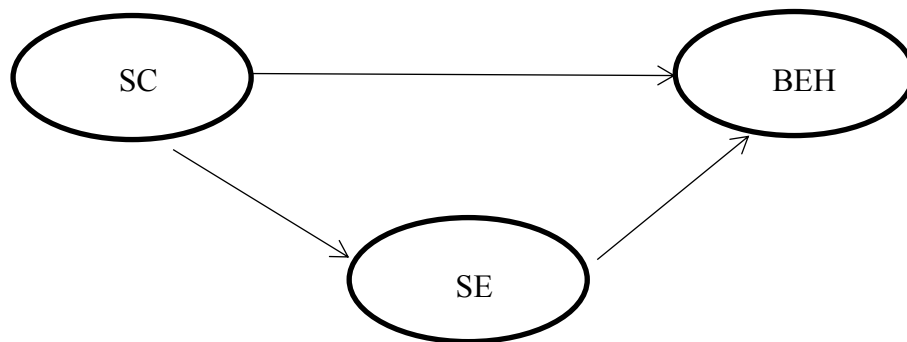management, student engagement); Beh=Reported inclusive behavior.

Figure 2: Final model. SC=Overall school climate perceptions; SE=Instructional strategies

efficacy; Beh=Reported inclusive behavior.