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Teacher efficacy and pupil behaviour: The structure of teachers' individual and collective beliefs and their relationship with numbers of pupils excluded from school

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Background. Previous work has yielded knowledge of teachers' attributions for children's behaviour. Other studies have helped to develop understanding of teachers' efficacy beliefs. Little work has been undertaken to examine teachers' efficacy beliefs with regard to classroom behaviour.

Aims. This study aimed to investigate the relationship between teachers' individual and collective beliefs about their efficacy with children's behaviour and whether these beliefs were associated with the use of exclusion as a sanction.

Sample. A total of 197 teachers from 31 primary and nursery schools in the North East of England participated.

Methods. Participants responded to questionnaires to assess their individual and collective efficacy beliefs. Demographic and school level data were also collected.

Results. Factor analysis indicated that teachers' individual efficacy beliefs were best represented by three factors: 'Classroom Management', 'Children's Engagement', 'Instructional Strategies' that corresponded well to previous findings. Analysis of collective efficacy beliefs showed a similar structure that differed from previous findings. Individual efficacy was not associated with numbers of children excluded. One factor 'Addressing External Influences' in the collective beliefs was negatively correlated with numbers of children excluded and appeared to mitigate the deleterious effects associated with socio-economic deprivation.

Conclusions. This study adds weight to the importance of understanding and supporting teachers' beliefs in their collective efficacy. In particular, this study underlines the need for strategies that will endorse and develop teachers' beliefs in their ability to manage children's behaviour successfully.

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Concerns about children's behaviour in school have been – and continue to be – widely reported and debated (Grieve, 2009; Klassen & Anderson, 2009; Martin, Linfoot, & Stephenson, 1999; Miller, 2003; Steer, 2009). Over time, concerns have also been raised about how well-prepared teachers believe they are and how effective they might be in dealing with problematic behaviour (Brophy & Rohrkemper, 1981; Giallo & Little, 2003).

While some research has indicated that teachers believe the causes of children's misbehaviour lie outside their responsibility or control (Gibbs & Gardiner, 2008; Miller, 2003; O'Brien & Miller, 2005), Miller (1995) found that when teachers were successful in managing behaviour they were likely to attribute the success to their own efforts. It is evident that the beliefs that teachers hold can be powerful determinants of both their professional commitment, as well as the outcomes in terms of children's learning and achievement (Caprara, Barbaranelli, Steca, & Malone, 2006; Tschannen-Moran & Woolfolk Hoy, 2001). More specifically teachers' belief in their confidence and determination to succeed is a primary requirement for skilful classroom practice and successful management of the learning environment (Martin *et al.,* 1999; Muijs & Reynolds, 2002; Skinner & Belmont, 1993; Woolfolk-Hoy & Weinstein, 2006).

Although studies have revealed a range of beliefs about teachers' responsibility for 'problematic' children (for instance Jordan & Stanovich, 2003; Stanovich & Jordan, 1998), the work by Miller (2003) highlighted the role of the collective staff group in a school (the culture of the staffroom) that may contextualize teachers' beliefs in their ability to manage children's behaviour successfully.

In an attempt to provide further understanding of teachers' beliefs and their effectiveness in managing classroom behaviour, the research reported in this paper examines in some detail the relationship between teachers' individual and collective beliefs and their management of children's behaviour as indicated by the numbers of children excluded from their schools.

Teacher efficacy beliefs

Theories of '*Teachers' self-efficacy beliefs'* (Bandura, 1993; Ross, Hogaboam-Gray, & Gray, 2004; Tschannen-Moran & Woolfolk Hoy, 2001) refer to the strength of the beliefs that teachers hold that they can positively influence aspects of children's educational development. Importantly, as Bandura and others have stressed, self-efficacy beliefs are domain specific (Bandura, 1997; Goddard, Hoy, & Woolfolk Hoy, 2004).

There is a wealth of research into aspects of teachers' belief in their individual efficacy. Some of this deals with methodological and conceptual matters (for example, Klassen *et al.*, 2009; Tschannen-Moran *et al.*, 1998; Tschannen-Moran & Woolfolk Hoy, 2001). Other researchers have investigated the relationship between individual teachers' beliefs and the impact these may have on classroom practice and, ultimately, children's achievement (Ashton & Webb, 1986; Caprara *et al.*, 2006; Ross, 1992; Tournaki & Podell, 2005). However, while teachers' ability to manage pupils and the classroom environment is clearly a pre-requisite for the creation of a good learning environment (Bandura, 1997; Muijs and Reynolds, 2002; Skinner and Belmont, 1993), there is little empirical evidence about the impact of teachers' efficacy beliefs on their management of children's behaviour.

Development of efficacy beliefs

Whilst studies that demonstrate the association of individual efficacy beliefs with outcomes are important, of arguably equal, if not greater, importance is the need for

further research to investigate sources of efficacy beliefs (Klassen, Tze, Betts, & Gordon,, 2011; Labone, 2004). It has been suggested that greater understanding of the conditions that support teachers' efficacy beliefs would facilitate educational reform, enhance the development of inclusive education and reduce exclusion (Gibbs, 2007; Labone, 2004).

Clearly the development of belief in one's personal efficacy will change in response to experience and cognition (Bandura, 1997).

A primary source of efficacy beliefs is successful 'mastery' experience (Bandura, 1977, 1997; Knoblauch & Woolfolk Hoy, 2008; Mulholland & Wallace, 2001). Accordingly, as predicted, mastery experience has been found to be the most salient contributor to efficacy beliefs amongst both novice and experienced teachers (Tschannen-Moran & Woolfolk Hoy, 2007).

Other sources of influence on individual efficacy beliefs include vicarious experience, social persuasion, and affective states (Bandura, 1997). Whilst studies such as that by Tschannen-Moran and Woolfolk Hoy (2007) suggest these factors are of lesser importance than mastery experience, professional development and training activities involving social persuasion and vicarious experience have been found to increase teachers' beliefs in their professional role, responsibility, and efficacy (Stanovich & Jordan, 2004; Tschannen-Moran & McMaster, 2009).

A plausible and potentially critical additional psychosocial source for *individual teacher efficacy* beliefs appears to reside within the staff and school ethos. The prevalent attitudes that school staff hold about roles and responsibilities with regard to certain groups of children can clearly influence the beliefs of individual teachers (Jordan & Stanovich, 2003). In his study of teachers' attributions for behaviour, Miller (2003) commented on the potential power of the staffroom culture. Subsequent work illustrated how teachers' discourses may construct their attitude towards behaviour (O'Brien & Miller, 2005). From such discourse amongst colleagues (in the milieu of the staffroom, for instance) may arise shared beliefs in the *collective efficacy* of the school staff (Goddard & Goddard, 2001; Goddard, Hoy, & Woolfolk Hoy, 2000; Goddard *et al.*, 2004; Goddard & Skrla, 2006; Hoy & Miskel, 1996; Kurz & Knight, 2004; Parker, Hannah, & Topping, 2006; Tschannen-Moran & Barr, 2004).

A 'nested' relationship between individual teacher efficacy beliefs and the collective efficacy beliefs of the staff group was investigated by Goddard and Goddard (2001), who found collective efficacy beliefs to be predictive of individual teacher efficacy beliefs. It has also been shown that the relationship between individual and collective efficacy beliefs may be mediated by individuals' sense of themselves as members of the organization (Friedman & Kass, 2002). It seems possible, therefore, that the nature and management of the school as an organization may be highly influential on individual beliefs in efficacy (Bandura, 1997; Chen & Lee, 2007; Goddard & Goddard, 2001; Ross & Gray, 2006; Stanovich & Jordan, 1998).

Teacher efficacy and children's behaviour

As we have already noted, the ability to provide confident management of the classroom is a primary requirement for successful teaching (Woolfolk-Hoy & Weinstein, 2006). There is evidence that suggests not all teachers are equally motivated to attempt to manage children's behaviour (Brophy & Rohrkemper, 1981; Jordan and Stanovich, 2003). Teachers with greater belief in their efficacy are more likely to be motivated to manage the classroom and learning environment successfully (Bandura, 1997; Tschannen-Moran & Woolfolk Hoy, 2007).

Emmer and Hickman (1991) investigated teachers' beliefs about their efficacy for classroom management and discipline. Although the efficacy beliefs of the student teachers in Emmer and Hickman's study were predictive of their responses to problems presented in vignettes, they were not related to judgements made about the student teachers' actual performance in the classroom. However, in one of the only empirical studies of children's actual behaviour in this context, Almog and Shechtman (2007) looked at teachers' efficacy beliefs and responses to children's observed behaviour. Their findings indicated the existence of significant positive correlations between individual teachers' self-rating of their efficacy beliefs and their responses to the actual behaviours shown in the classroom.

When teachers perceive themselves competent in classroom management it appears that children's self-efficacy for behavioural regulation and prosocial functioning may be enhanced (Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003; Bandura, Caprara, Barbaranelli, Pastorelli, & Regalia 2001; Skinner & Belmont, 1993). Given that children's (and adults') efficacy beliefs are a product of triadic reciprocal causation involving the person, behaviour, and the environment (including the psychosocial environment; Bandura, 1986), if children perceive teachers as collectively and coherently effective in managing behaviour, consistent with Bandura's theory we should expect children to have greater belief in their ability to manage their own behaviour appropriately. Thus, for example, an inverse relationship has been found between the ethos of a school (plausibly a manifestation of the collective beliefs and practices of school leadership and staff) and the incidence of children's transgressive behaviour (Brugman *et al.*, 2003).

Conversely, it seems that teachers who express little belief in their efficacy are less tolerant of unusual behaviour or patterns of learning and are more likely to seek exclusion of 'problematic' students from their classroom (Jordan & Stanovich, 2003; Podell & Soodak, 1993). Teachers may also experience significant stress and an increased risk of burnout resulting from children's perceived misbehaviour when collective perceptions of efficacy are low (Betoret, 2006; Brouwers, Evers, & Tomic, 2001; Brouwers & Tomic, 2000; Hastings & Bham, 2003; Klassen, 2010; Yoon, 2002). In such circumstances, a solution to the teacher's difficulties may be to seek the removal of a child from the classroom. This may result in the formal exclusion of the child from the school. Whilst children's poor behaviour may be an issue for teacher recruitment, well-being and retention, and associated costs (Ingersoll & Smith, 2003), children excluded from classrooms or schools implicate considerable additional costs for alternative provision (Parsons & Castle, 1998; Vulliamy & Webb, 2000).

Exclusion

The 'rate' at which children are excluded from school appears to fluctuate with time and across countries. This appears to be at least partly in response to changes in policy and practice (Gilliam & Shahar, 2006; Imich, 1994; Theriot, Craun, & Dupper, 2010). Although the fact of a child's exclusion from school may be indicative of more extreme misbehaviour, the frequency of exclusions from a school is taken here to be an indicator of the general frequency and severity of perceived misbehaviour in a school.

Many researchers have also noted that children's age, race, and socio-economic status are all important factors implicated in the way that school staff deal with behaviour (Bourne, Bridges, & Searle, 1994; Gillborn & Gipps, 1996; McLean, 1987; Noltemeyer & McLoughlin, 2010; Osler, Watling, & Busher, 2001; Social Exclusion Unit, 1998; Wright, Weekes, & McGlaughlin, 2000). Much of that body of work makes

use of the characteristics of children. It thus demonstrates how certain groups (racial, social, economic) are disproportionately represented amongst all those excluded from schools. However, when conceptualized as being due to within child characteristics, it is probable that teachers will inevitably regard children's behaviour as beyond their influence (Grieve, 2009; Miller, 1995). Such a position might be found to militate against increased inclusion (Gibbs, 2007). In this context, it is appropriate to seek alternative explanations. As we have indicated above, a plausible relationship between teachers' beliefs, attitudes, and practices may be associated with increased exclusion or inclusion of children.

There is, in any case, evidence that the characteristics of neither children nor schools fully account for rates of exclusion. Thus, it has been found that schools with very similar characteristics and intakes may differ significantly in the rate at which children are excluded because of their behaviour (Galloway, Martin, & Wilcox, 1985; Munn, Cullen, Johnstone, & Lloyd, 2001; Osler *et al.,* 2001, Vulliamy & Webb, 2000). As suggested in the preceding review, an alternative possibility lies in the relationship between teachers' beliefs and practices, the organizational ethos of schools, and rates of exclusion.

Summary

Previous studies have suggested that collective staff efficacy beliefs endorse individual teacher's efficacy beliefs, reduce the stress that teachers may attribute to children's misbehaviour, and provide a school ethos and positive models of behaviour for children. Specifically, we propose here that in schools that evidence positive collective beliefs in staff management of behaviour, children would demonstrate greater self-efficacy in regulating their own behaviour. As a result, teachers in such circumstances would be less likely to deem children's behaviour so extreme as to warrant exclusion and rates of exclusion for misbehaviour would be reduced.

The purpose of the investigation reported in this current paper was threefold.

First, in relation to the specific domain of teachers' classroom management and children's behaviour, to seek to determine whether or not the underlying structure of teachers' beliefs matched the more general patterns of individual beliefs as found by Tschannen-Moran and Woolfolk Hoy (2001) and the collective beliefs reported by Goddard (2002).

Second, to investigate the relationship between collective and individual efficacy beliefs and to test the hypothesis that in relation to teachers' individual management of classroom behaviour, high collective efficacy beliefs would be associated with enhanced individual teacher efficacy beliefs.

Finally, again in relation to teachers' specific beliefs about their efficacy in managing children's behaviour, we were interested in the extent to which positive efficacy beliefs might be associated with lower rates of exclusion from school. We anticipated that in line with earlier work the exclusion rates would be higher in urban settings and in schools in relatively poor socio-economic areas [as indicated by eligibility for free school meals (FSM)]. However, we hypothesized that in schools where teachers expressed positive beliefs in their classroom management efficacy exclusion rates would be lower.

Whilst attention has rightly been drawn to behaviours that may be associated with other special needs (see, for instance, Cole, 1998), in this study we focussed on teachers' expectations that they could manage the behaviour of children who showed no other specific identifiable need for additional or different provision. Other papers (in preparation) will provide case-study material based on interviews with individual

teachers and illustrate influences on the development of efficacy beliefs. This paper is intended, therefore, to provide some contextual foreground for the reports of qualitative studies that are in preparation.

Method

Participants

Following initial discussion between the second author and the head teacher of each school, all teachers in an opportunity sample of 31 primary and nursery schools in the North East of England were invited to participate. The schools were located across a mixed demographic area and were classified as being in either inner city (57%) or rural settings (42%). Staff in all schools responded and respondents were representative of the range of roles in these schools. A total of 197 responses were received. The average response rate per school was 44% of all teachers. Other than data linking respondents to their school, participants remained anonymous.

Information was gathered about the respondents' gender, role in school, and years of experience as a teacher. School level data were also collected for the number of children on roll (NOR), the number of children eligible for FSM, and the number of fixed-term exclusions in the previous year (FTE). The number of children eligible for FSM is used here as a proxy for the socio-economic status of the community served by each school but we acknowledge that there is debate about its suitability as a measure of the characteristics of any given cohort of children (Croxford, 2000; Goldstein & Noden, 2003; Hobbs & Vignoles, 2007). The number of children receiving FTE is taken as an index of the extent to which pupils' behaviour in each school had been deemed to be extreme and unacceptable to the staff.

The majority (84%) of respondents were women and had been teaching for at least 7 years (71%). Twenty percent were the head or deputy head of the school, 74% were class teachers, and 6% were nursery teachers.

Teachers were asked to complete two questionnaires. One surveyed individual efficacy beliefs; the second sought data revealing beliefs in the collective efficacy of the teaching staff in that school.

Measures

The survey of beliefs in individual efficacy was carried out using an adaptation of the Teachers Sense of Efficacy Scale (TSES; Tschannen-Moran & Woolfolk Hoy, 2001). This scale has been widely used (see for example Knobloch & Whittington, 2002; Mohamadi, Asadzadeh, Ahadi, & Jomehri, 2011; Tschannen-Moran & Woolfolk Hoy, 2007; Wolters & Daugherty, 2007). In an international, cross-cultural study using confirmatory factor analysis (Klassen *et al.*, 2009) the scale was shown to have good reliability and validity ($\alpha > .71$; Comparative Fit Index, CFI = .979). However, for the purposes of the present study some minor changes were made to adapt terms for UK participants and to draw attention to the specific domain of children's behaviour. The items are shown in Table 1. Teachers were asked to respond on a six-point scale that ranged from 'Nothing' to 'A great deal'.

The same teachers were also asked to complete a questionnaire based on Goddard's (2002) 12-item scale. Goddard's (2002) study of collective efficacy demonstrated the scale's predictive validity and reliability ($\alpha = .94$) and the scale has been used in a number of further studies (e.g., Goddard, *et al.*, 2004; Goddard & Skrla, 2006). For the present study the scale was adapted for UK teachers with items (shown below in

Table 1. Factor loadings of items in the teachers' individual sense of efficacy scale (loadings <.30 not shown)

	Instructional strategies	Classroom management	Children's engagement
How much can you assist families in helping their children do well in school, specifically children who you consider to be presenting difficult behaviour?	.688		
To what extent can you craft good questions for pupils who you consider to be presenting difficult behaviour?	.590		
How well can you implement alternative strategies in your classroom?	.573		
To what extent can you provide an alternative explanation or example when pupils who you consider to be presenting difficult behaviour are confused?	.475		
How much can you use a variety of assessment strategies when teaching pupils who you consider to be presenting difficult behaviour?	.453		
How much can you do to calm a pupil who is disruptive or noisy?		.773	
How much can you do to get pupils who you consider to be presenting difficult behaviour to follow classroom rules?		.760	
How much can you do to control disruptive behaviour in the classroom?	−.336	.665	.413
How well can you establish a classroom management system with pupils who you consider to be presenting difficult behaviour?		.516	
How much can you do to get pupils who you consider to be presenting difficult behaviour to believe they can do well in schoolwork?			.772
How much can you do to help pupils who you consider to be presenting difficult behaviour value learning?			.671
How much can you do to motivate pupils who present difficult behaviour and show a low interest in schoolwork?			.612
Eigenvalue	5.02	5.08	4.87
α	.820	.833	.861
Mean percent of maximum	80.8	84.3	81.3
Initial solution	Eigenvalue	Cum% variance	
Factor 1	6.54	54.5	
Factor 2	.96	62.4	
Factor 3	.78	68.9	

Table 2) designed to gauge their perception of the *collective efficacy* of teachers in the school with regard to the management of problematic behaviour. The questionnaire developed by Goddard (2002) was chosen as the basis for our work because it specifically includes items that gauge teachers' perceptions of the influence of environmental factors (e.g., children's home and community circumstance) on their beliefs (*pace* Klassen *et al.*, 2011, Tschannen-Moran & Barr, 2004). Teachers were asked to respond to a six-point scale that ranged from 'Strongly disagree' to 'Strongly agree'.

Table 2. Factor Loadings of items in the individual teacher's sense of collective efficacy scale (loadings <.30 not shown)

	Teacher skills	Motivating pupils	Addressing external influences
Teachers at this school do not have the skills needed to produce meaningful student learning, specifically with pupils who they consider to be presenting difficult behaviour in class.	.818		
If a pupil who presents difficult behaviour does not want to learn, teachers here give up.	.884		
Teachers in this school do not have the skills to deal with pupil disciplinary problems.	.677		
For pupils considered to be presenting difficult behaviour, learning is more difficult at this school because they are worried about their safety.	.533		
Teachers in this school are able to get through to the most difficult students.		.897	
Teachers here are confident they will be able to motivate pupils who they consider to be presenting difficult behaviour in class.		.894	
Teachers in this school really believe that every pupil who they consider to be presenting difficult behaviour in class can learn.		.337	
Pupils who are considered to be presenting difficult behaviour in class come to school ready to learn.			.643
Home life provides so many advantages these pupils are bound to learn.			.638
The opportunities in this community help ensure that pupils who are considered to present difficult behaviour will learn.			.547
Drug and alcohol abuse in the community make learning difficult for pupils presenting difficult behaviour here.			.483
Pupils who present difficult behaviour in this school just aren't motivated to learn.			.426
Eigenvalue	2.75	2.45	1.97
α	.79	.78	.82
Mean percent of maximum	60.9	60.4	39.7
Initial solution	Eigenvalue	Cum% variance	
Factor 1	3.75	31.22	
Factor 2	1.82	46.4	
Factor 3	1.56	59.4	

This scale provided data indicating individual teacher's sense of the collective efficacy in their school. However, Goddard and colleagues (Goddard, 2001, 2002; Goddard, *et al.*, 2004; Goddard and Goddard, 2001) have emphasized the conceptual and psychometric importance of aggregating individual perceptions within each school to obtain, via the group mean of all teachers' individual responses to items about the collective efficacy of staff, a school-level measure of group-referent collective efficacy. As Goddard (2002, p. 99) reasoned, 'the group mean effectively captures the behavioural and normative

influence that collective efficacy exerts'. This strategy was adopted here and the mean (group-referent) responses were calculated and used in subsequent analyses.

A pilot trial of both the individual and collective efficacy scales was conducted with all 12 teachers in one primary school to determine if the revised wording and administrative procedures were suitable for UK contexts. Cronbach's alphas were found to indicate at least adequate reliabilities (.92; .78, respectively) and feedback from participants indicated no further revisions were necessary.

Results

In order to examine the underlying structure of the beliefs expressed by teachers in this study, Exploratory Factor Analysis (EFA) was carried out using the data from each of the two scales.

For responses to the *Teachers' Individual Sense of Efficacy* questionnaire preliminary tests indicated the data were suitable for EFA (Keyser-Meyer-Olkin, KMO = .93). The questionnaire showed strong internal consistency ($\alpha = .92$) in line with previous studies. Factors were extracted using Principal Axis Factoring. Since we had reason to believe the underlying factors might be correlated, in order to simplify interpretation and direct comparison with previous studies, promax rotation was applied to reveal the simple structure. Inspection of the scree plot and consideration of previous research (Klassen *et al.*, 2009; Tschannen-Moran & Woolfolk Hoy, 2001) confirmed that a three-factor solution should be requested. The factors were, in our view, indicative of teachers' beliefs in their efficacy for: *Classroom Management, Children's Engagement,* and *Instructional Strategies.* This solution (see Table 1) was dominated by an initial large eigenvalue of 6.5. This in itself may indicate that a solution based on a single factor would be the best explanation of these data and that a total Individual Teacher Efficacy score might have some validity. However, the three-factor solution requested was similar to the three-factor solution identified by Tschannen-Moran and Woolfolk Hoy (2001). The single discrepancy between the solution found in the present study and that first reported by Tschannen-Moran and Woolfolk Hoy (2001) was with respect to the item 'How much can you assist families in helping . . . ?' In the work reported by Tschannen-Moran and Woolfolk Hoy (2001) and Klassen *et al.* (2009) this item was found to load onto the factor 'Efficacy for student engagement'. In our study, this item was found to load onto 'Efficacy for Instructional Strategies' with no significant cross-loadings.

Although as can be seen in Table 1 there were some significant cross-loadings (Stevens (2002) suggests that loadings less than .3 may be discounted), elimination of those items (singly or severally) did not yield any easily interpretable solutions and, therefore, in light of this solution's proximity to that found by Tschannen-Moran and Woolfolk Hoy, and Klassen *et al.* this solution was retained for discussion.

Teachers' total responses to the items in each of the three scales were converted to proportions of their maximum (since the scales were not all the same length) and a one-way within subjects ANOVA performed to determine if the teachers rated any factors more important than others. This analysis indicated a significant main effect of 'factor' ($F = 15.8$, $p < .001$). Pairwise comparisons (with Bonferroni adjustment for multiple comparisons) suggested that teachers had a significantly more positive belief in the factor 'Efficacy for Classroom Management' efficacy than either 'Efficacy for Children's engagement' or 'Efficacy for Instructional Strategies', and that the difference between these latter two factors was not significant.

Table 3. Means and standard deviations of individual teacher's collective efficacy subscales by school setting

	School setting	Mean	*SD*	*N**
Teacher skills	Urban	58.0	14.8	94
	Rural	65.2	8.84	64
	Total	60.9	13.2	158
Motivating pupils	Urban	59.4	9.8	94
	Rural	61.8	9.6	64
	Total	60.4	9.7	158
Addressing external influences	Urban	35.2	11.2	94
	Rural	46.4	11.6	64
	Total	39.7	12.6	158

A series of MANOVAs was also performed in order to make comparisons across subgroups. No significant differences were found due to the teacher's role (head-teacher, deputy, class-teacher, etc.), years of teaching experience, or school setting.

For individuals' responses to the *Collective Efficacy* questionnaire, preliminary analyses indicated the data were suitable for EFA (KMO = .750). The questionnaire showed adequate internal consistency ($\alpha = .79$). Factors were extracted using Principal Axis Factoring with promax rotation applied to reveal the simple structure. There were three factors with eigenvalues greater than 1. Cumulatively these accounted for 59.4% of the variance in the data. This three-factor solution is presented above in Table 2. That a three-factor solution was indicated as a viable solution is in contrast to Goddard's (2002) finding of a single-factor solution. This will be discussed below. On inspection of the constituent items, we considered the three factors to represent the teachers' beliefs in their efficacy for use of *Teacher Skills*, *Motivating Pupils,* and in addressing *External Influences*.

Teachers' total responses to the items in each of the three subscales were converted to proportions of their maximum and a mixed design MANOVA was also performed using the subscales as the within subject variables and teacher's role, years of experience, and school setting as independent variables. This analysis indicated a significant main effect of Collective Efficacy ($F = 213.5$, $p < .001$) and a significant interaction with school setting ($F = 8.9$, $p < .001$). Pairwise comparisons (with Bonferroni adjustment for multiple comparisons) suggested that these teachers perceived themselves as equally efficacious in their use of skills and in motivating children. In comparison, it appears that they believed they had significantly less efficacy in addressing 'External Influences'. A summary of the relevant means and standard deviations for this aspect of the data are shown in Table 3. Again, no significant differences were found due to the teacher's role (head-teacher, deputy, class-teacher, etc.), years of teaching experience, or school setting and these variables were not included in any subsequent analyses.

Following this, as described above, using the procedure advocated by Goddard and colleagues, the *group-referent* collective efficacy data were calculated and submitted for EFA. Preliminary tests indicated these data were suitable for analysis (KMO = .739). Factors were extracted using Principal Axis Factoring with promax rotation. Four factors were found to have eigenvalues greater than 1 and cumulatively accounted for 85.3% of the variance. This solution was not, however, finally requested since one factor had loadings on just two items and interpretation of factors was not straightforward. Instead, a three-factor solution was selected as providing the best fit between interpretability,

Table 4. Means and standard deviations of group-referent teacher's collective efficacy subscales by school setting

	School setting	Mean	*SD*	*N**
Teacher skills	Urban	58.3	13.3	108
	Rural	65.0	4.8	82
	Total	61.2	11.0	190
Motivating pupils	Urban	59.6	5.0	108
	Rural	61.4	5.5	82
	Total	60.4	5.3	190
Addressing external influences	Urban	35.4	6.6	108
	Rural	44.2	9.3	82
	Total	39.2	9.0	190

*The different values for *N* (urban and rural) arise because although there were some missing responses from individual teachers the group-referent scores derive from the mean response from all staff in a school.

conceptual integrity, and empirical loadings (see Table 5). This solution accounted for 76.6% of the variance in the data. On inspection of the constituent items we again considered the three factors to represent the teachers' beliefs in their collective efficacy in the use of *Teacher Skills*, *Motivating Pupils,* and in addressing *External Influences*.

Once again, teachers' total responses to the items in each of the three subscales were converted to proportions of their maximum and a mixed design MANOVA was performed using the group-referent subscales as the within subject variables and teacher's role, years of experience, and school setting as independent variables. This analysis indicated a significant main effect of group-referent collective efficacy ($F = 602.8$, $p < .001$) and a significant interaction of collective efficacy with school setting ($F = 16.1$, $p < .001$). The relevant means are shown in Table 4. Pairwise comparisons (with Bonferroni adjustment for multiple comparisons) suggested there was no significant difference between the strength of group beliefs in the staff efficacy with regard to 'Teacher Skill' and 'Motivating Pupils' but there was a significantly weaker belief in their efficacy in addressing 'External Influences'.

As we were also interested to see if teachers' individual efficacy beliefs were affected by the group-referent collective beliefs in each school, we next conducted a series of exploratory hierarchical regressions. Since the relationship of individual and group-referent efficacy beliefs might, we thought, be mediated by individual perceptions of collective efficacy, these variables were included in the analysis. Thus, with each of the individual efficacy factors (Classroom Management, Children's Engagement, Instructional Strategy) in turn as the dependent variable, following entry of NOR, School Setting and FSM, the independent variables were entered in the order: Collective Efficacy 1 (Teaching Skill), Collective Efficacy 2 (Motivating Pupils), Collective Efficacy 3 (External Influences), Group Referent Teaching Skill, Group Referent Motivating Pupils, Group Referent External Influences. Durbin–Watson and multi-collinearity tolerance statistics did not indicate any serious violations of underlying assumptions. The analyses suggested that of the IVs, teachers' individual perception of Collective Efficacy 2 (Motivating Pupils) alone accounted for significant proportions of variance in the dependent variables and this was quite consistent across all three regressions ($\Delta R^2 = .127$, $F_{\text{to enter}} = 27.9$, $p < .01$; $\Delta R^2 = .123$, $F_{\text{to enter}} = 29.5$, $p < .01$; $\Delta R^2 = .148$, $F_{\text{to enter}} = 33.3$, $p < .01$, respectively, for the addition of this variable in each regression).

Table 5. Factor Loadings of items for the group-referent teachers' sense of collective efficacy (Loadings <.30 not shown)

	Teacher skills	Motivating pupils	Addressing external influences
If a pupil who presents difficult behaviour does not want to learn, teachers here give up.	.982		
Teachers at this school do not have the skills needed to produce meaningful student learning, specifically with pupils who they consider to be presenting difficult behaviour in class.	.961		
Teachers in this school do not have the skills to deal with pupil disciplinary problems.	.921		
For pupils considered to be presenting difficult behaviour, learning is more difficult at this school because they are worried about their safety.	.711		
Teachers here are confident they will be able to motivate pupils who they consider to be presenting difficult behaviour in class.		.960	
Teachers in this school are able to get through to the most difficult students.		.959	
Teachers in this school really believe that every pupil who they consider to be presenting difficult behaviour in class can learn.		.711	
The opportunities in this community help ensure that pupils who are considered to present difficult behaviour will learn.			.789
Drug and alcohol abuse in the community make learning difficult for pupils presenting difficult behaviour here.		−.374	.757
Pupils who present difficult behaviour in this school just aren't motivated to learn.			.689
Pupils who are considered to be presenting difficult behaviour in class come to school ready to learn?			.652
Home life provides so many advantages these pupils are bound to learn.			.409
Eigenvalue	4.30	3.61	3.37
α	.931	.894	.815
Mean percent of maximum	61.2	60.4	39.2
Initial solution	Eigenvalue	Cum% variance	
Factor 1	5.42	45.1	
Factor 2	2.02	62.0	
Factor 3	1.76	76.6	

Finally, we wanted to assess whether teachers' beliefs might be related to responses to children's behaviour as expressed by the number of children given fixed term exclusions from each school. An examination of simple bivariate correlations indicated no association between the size of school (NOR) and numbers of exclusions. However, significant associations were found between socio-economic status (FSM), numbers of exclusions (FTE), and group-referent collective efficacy beliefs. The means and bivariate correlation coefficients are shown in Table 6.

Table 6. Means, standard deviations and correlations of fixed term exclusions (FTE), free school meals (FSM), individual, collective (CE), and group-referent collective efficacy factors

	FTE	FSM	Individual teacher efficacy			Individual teacher's CE			Group-referent CE		
	1	2	3	4	5	6	7	8	9	10	11
1. FTE	1										
2. FSM	.499**	1									
3. Classroom management	−.137	−.048	1								
4.Children's engagement	−.095	.003	.699**	1							
5. Instructional strategies	−.097	.057	.686**	.696**	1						
6. Teacher skills	−.032	−.122	.035	−.030	.055	1					
7. Motivating pupils	−.057	−.068	.350**	.343**	.413**	.455**	1				
8. Addressing external influences	−.292**	−.399**	.197*	.163*	.219**	.290**	.294**	1			
9. Teacher skills	−.013	−.141	.029	.035	.084	.837**	.198**	.318**	1		
10. Motivating pupils	−.091	−.134	.244**	.236**	.270**	.289**	.557**	.170*	.455**	1	
11. Addressing external influences	−.368**	−.520**	.117	.041	.124	.344**	.143	.724**	.412**	.301**	1
Mean	1.67	29.3	84.1	80.8	80.9	61.6	60.7	39.5	61.6	60.6	39.3
SD	.85	19.1	11.3	12.2	10.5	12.8	9.5	12.8	11.0	5.4	9.0

**$p < .01$; *$p < .05$.

Taking account of School Setting (rural or urban), and variations in FSM and Group Referent Collective Efficacy, we then conducted a series of exploratory hierarchical regressions of the number of exclusions (FTE). On inspection of the raw data it was found necessary to perform a logarithmic transformation of the independent variable (FTE) to correct for a positive skew. The transformed variable was used in all the following regression analyses. Following entry of School Setting, and FSM, each of the Group Referent Collective Efficacy factors: Teaching Skill, Motivating Pupils, External Influences was entered in turn as the final predictor variable. Having taken account of school size ($F_{\text{to enter}} = 3.3$ ns), significant additional variance in the regression of exclusions was associated with the entry of school setting ($F_{\text{to enter}} = 16.6$, $p < .01$) and then FSM ($F_{\text{to enter}} = 32.8$, $p < .01$). When the final predictor variable was entered, we found that of the three factors implicated in teachers' collective efficacy beliefs only 'External Influences' was associated with significantly more variance between schools in the number of exclusions ($F_{\text{to enter}} = 5.07$, $p = .03$). However, a one-way ANCOVA was also performed to test if exclusions were higher in urban areas than in rural areas. FSM and group-referent collective efficacy for addressing External Influences were entered as covariates. This analysis indicated that having taken account of the covariates, the mean numbers of exclusions by schools in urban and rural settings were not significantly different from what might be expected by chance.

Summary and Discussion

One hundred and ninety-seven primary and nursery school teachers from 31 schools in the North East of England responded to a questionnaire survey of their efficacy beliefs. We also collected data regarding the number of pupils on roll, the number of pupils eligible for FSM, and the number of pupils receiving fixed term exclusions from each school.

Our data provide some confirmation of the general underlying structure of teachers' individual efficacy beliefs as previously found by Tschannen-Moran and Woolfolk Hoy (2001) and Klassen *et al.* (2009). However, teachers' collective beliefs in their ability to manage children's behaviour seems to have a rather more complex underlying structure than that found by Goddard *et al.* (2004).

Teacher efficacy

Analysis of the data indicated that the teachers' beliefs in their *individual efficacy* in managing children's behaviour consisted of three factors. These factors coincided almost exactly with the underlying structure first presented by Tschannen-Moran and Hoy (2001) and subsequently confirmed by Klassen *et al.* (2009). In order to emphasize the similarity and to imply the constancy of teacher's efficacy beliefs across domains and cultures, we also labelled the factors as '*Efficacy for Classroom Management', 'Efficacy for Children's Engagement',* and '*Efficacy for Instructional Strategies'*. The first of these factors was found to be the area in which the teachers expressed the highest efficacy beliefs. A limitation of the present study is that unlike Almog and Shechtman (2007) we did not collect observational data about teachers' classroom practices. Thus, it is perhaps unsurprising that no aspect of teachers' individual efficacy beliefs was associated with the number of children excluded from the schools. Thus, while belief in classroom management efficacy is clearly important in support of how teachers manage children's

behaviour, it seems this does not directly affect whether or not children are excluded from school.

The teachers' responses to the survey of their *collective efficacy* beliefs were analysed firstly to capture each teacher's individual belief in the collective efficacy of staff. Secondly, in line with the strategy adopted by Goddard and colleagues (Goddard *et al.*, 2004; Goddard & Goddard, 2001, 2002) analysis was undertaken of aggregated scores representing the typical (group mean referent) collective efficacy beliefs of the teachers in each school. Whereas Goddard and colleagues identified a single factor (accounting for just over 64% of the variance), in the present investigations both sets of analyses of the collective efficacy data yielded parsimonious three-factor solutions (accounting for 59% and just under 77% of the variance, respectively).

In considering the difference between the present findings with regard to collective efficacy and those of Goddard and colleagues, there is a need to acknowledge the possible influence of different domains but also the nature of our sample. Goddard and colleagues investigated teachers' efficacy beliefs in relation to children's academic achievement. This is plausibly a task with greater unity and coherence that easily accords with teachers' explicit professional duty. In contrast, as Miller (1995) and others have shown, teachers may have a range of causal attributions for pupils' misbehaviour. Since efficacy beliefs are necessarily domain specific (Bandura, 1997), it follows that in line with the underlying structure of teachers' attributions for the causes of problematic behaviour, efficacy would be required in each of the specific areas of concern. However, a weakness of the present study is that we did not gain the responses of all teachers in every school and so, for example, cannot be confident that the views of non-responders would be consistent with the mean scores used here. Despite that caveat, the fact that respondents were representative of the range of roles and responsibilities in the schools does give us some confidence that the findings are worthy of attention.

In the present study, the three factors were identified as representing teacher's collective beliefs with regard to *Efficacy for Teacher Skill, Efficacy for Motivating Pupils,* and *Efficacy for Addressing External Influences*. Of these factors, *Addressing External Influences* appears to have been the area of professional activity in which the teachers overall believed they had least efficacy. When teachers feel they are unsuccessful in managing children's behaviour they are, according to Miller (1995), likely to attribute the cause of the misbehaviour to sources outside their direct control. Thus, the finding that teachers have weaker beliefs in their efficacy to address external influences is in line with Miller's view. However, over and above the influence of the setting of the school and the level of deprivation in the community, teachers' collective belief in their efficacy for addressing the effects of '*External Influences'* was significantly inversely related to the number of children excluded from each school. This suggests that when the staff corporately believes it can address influences that might otherwise undermine classroom practices, teachers may be ultimately more successful in avoiding recourse to exclusion as a way of 'solving' behaviour problems.

The nested relationship of collective and individual efficacy was elaborated by Goddard and Goddard (2001). However, the Goddards' study only considered unitary constructs in teachers' individual and collective efficacy. Our investigations demonstrated that in the domain of teachers' management of classroom behaviour their collective efficacy beliefs might be considered as having more complex underlying structures that evoke different aspects of efficacy. However, in partial confirmation of the Goddard and Goddard (2001) finding, in the current investigation we found several significant bivariate associations between collective and individual efficacy beliefs. It

is notable that with respect to teachers' management of children's behaviour, teacher beliefs in their individual efficacy in the classroom appear to have been related specifically only to the corporate belief in the staff's efficacy for motivating children to learn. It seems to us that the motivation to help children learn may be one of the principal drivers for choosing teaching as a career. Further, a strong sense of collective efficacy, inspired by a transformational leadership style has, elsewhere, been found to reinforce the shared goals of staff teams (Chen & Lee, 2007). A more detailed exposition of the links between leadership style, collective efficacy, and teachers' commitment in schools was provided by Ross and Gray (2006). The influence on the development of efficacy beliefs of a cooperative staff group may also be significant (Knoblauch & Woolfolk Hoy, 2008). We wonder, therefore, that when a strongly shared belief in the staff's collective efficacy exists amongst a staff group, then staff confidence will provide a context for the acquisition of mastery experiences (Bandura, 1997; Knoblauch & Woolfolk Hoy, 2008). Such a context could then enable individual teachers to develop a positive belief in their own efficacy to manage and teach children whose behaviour might be seen as difficult. Almost certainly such a context will provide vicarious experiences that too support the development of efficacy beliefs (Tschannen-Moran & McMaster, 2009; Tschannen-Moran & Woolfolk Hoy, 2007).

Exclusion and efficacy

In line with previous findings (Noltemeyer & McLoughlin, 2010), more children were excluded from schools in urban settings than in rural settings. Likewise, schools in socio-economically deprived areas were more likely to be formally excluding children than schools in more prosperous communities. In schools where the group mean collective efficacy (i.e., the measure of the central tendency of the staff group in each school) for addressing external influences (from home and community circumstances) was higher, exclusions were used less. More detailed analyses showed that while indications of socio-economic deprivation and collective efficacy were associated with the number of FTE used by schools (in opposing ways), if the effect of those factors was taken into account, there were no significant differences in the number of exclusions between schools in urban and rural settings. This suggests that a more complex investigation is required to separate out differential effects of school setting, socio-economics, and teachers' efficacy beliefs.

However, the study does suggest that in schools where the typical beliefs of the staff are that it is possible to address the adverse influence of home and community, fewer children will be excluded as a consequence of their behaviour. It is beyond the scope of this paper to establish what supported the positive belief of the staff in this respect. It is, however, possible that in schools where there is a positive, transformational style of leadership that supports the professional development of all staff, staff will be more likely to demonstrate inclusive beliefs and practices (Jordan & Stanovich, 2003; Knoblauch & Woolfolk Hoy, 2008; Ross & Gray, 2006; Stanovich & Jordan, 1998). We intend to address this in a companion paper (Powell & Gibbs, 2011).

Conclusions

Further to studies of the structure of teachers' individual efficacy beliefs (Tschannen-Moran & Hoy, 2001) and the consistency of this structure across cultures (Klassen *et al.*, 2009), the present study shows that the structure may also be consistent across domains. This emphasizes the generality and importance of the construct of teacher

efficacy. In light of concerns about standards in schools, teacher stress and children's behaviour (Caprara *et al.*, 2006; Grieve, 2009; Klassen, 2010; Tournaki & Podell, 2005), these findings reinforce the need for work that can provide support for the professional development of teachers as indicated by Stanovitch & Jordan (2004) and Jordan, Schwartz, and McGhie-Richmond (2009), for instance.

Although the evidence indicates remarkable consistency in the structure of teachers' individual beliefs, the structure of teachers' collective efficacy beliefs suggests a more complex picture than with that found by Goddard and colleagues (Goddard, 2001, 2002; Goddard *et al*, 2000, 2004; Goddard & Goddard, 2001). Goddard and colleagues were, however, primarily interested in teachers' efficacy at raising children's levels of academic performance. We suggest that since teachers' attributions about behaviour are more complex (Miller, 1995), teachers may hold a matching set of beliefs about their efficacy in managing children's behaviour. Thus, it seems quite plausible to us that when individual teachers hold beliefs about the collective ability of the staff to motivate children, individual teacher's own beliefs in their personal classroom efficacy will be more positive.

School level outcomes were related to the group-referent collective efficacy beliefs. Group-referent efficacy beliefs represent something of the 'ethos' of the school with regard to the management of children's behaviour. It is likely that this also represents the views of the leadership of the school (Chen & Lee, 2007; Ross & Gray, 2006). The analyses of our data indicate that for teachers and schools involved in this study, when staff views are that teachers believe they can successfully address external influences, less use is made of exclusion as a sanction. Encouragingly, but with implications for policy, leadership, staff development, and professional practice, the findings here indicate that positive collective efficacy beliefs about addressing external influences can counteract some of the deleterious effects of urban socio-economic deprivation.

This study, therefore, adds to what is already known about the importance of understanding and supporting teachers' beliefs in their efficacy. Our findings may contribute to an emerging theoretical position and form the basis for further investigations. There is a continuing need for better understanding of the sources of efficacy beliefs (Klassen *et al.,* 2011; Labone, 2004). The earliest formulations of the factors that lead to positive belief in individual efficacy posited mastery experience as a strong source (Bandura, 1977). However, in the complex world of teaching, teachers are typically somewhat isolated from immediate peer feedback. A more plausible but indirect source of support comes from the verbal commentary of colleagues in the staffroom (Miller, 2003). The expression of teachers' positive collective belief in their capability to motivate and engage children in learning provides endorsement of leadership values and a school ethos supportive of individual teacher's efficacy beliefs.

There is evidence of the corrosive effects (for children, teachers, and the community) of classroom misbehaviour (Grieve, 2009; Ingersoll & Smith, 2003; Martin *et al.*, 1999; Miller, 1995; Parsons & Castle, 1998; Steer, 2009; Vulliamy & Webb, 2000). This study also provides some proposals to consider how the psychological environment may support teachers' positive belief in their classroom efficacy that in turn might avert the use of exclusion and the associated social, educational, and financial costs that arise when children are excluded from schools. Our findings suggest that it is possible that a positive school ethos (expressed through collective beliefs in staff efficacy) can ameliorate negative expectations that may arise in anticipation of a school's socio-economic context.

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