

Newcastle University
School of Education, Communication and Language Sciences

Doctorate in Applied Educational Psychology

Teacher self-efficacy and teacher practice:

**An exploration of existing research and dynamics of
teacher self-efficacy in the Philosophy for Children
classroom**

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Overarching abstract

Teacher self-efficacy (TSE) is an often cited factor in teachers' practice and student outcomes. However, a relatively small evidence base supporting a positive relationship between higher TSE and better practice is often cited. A systematic literature review (chapter 1) was carried out examining existing studies on TSE and teachers' practice. A meta-analysis suggested a highly significant and moderate positive correlation between TSE and teachers' examined practice. The correlation accounted for a limited level of variance in the data, and a narrative exploration of the studies highlighted a breadth of other factors that were reported to contribute to the relationship of practice and TSE. Methodological issues within the studies were examined, highlighting that both the TSE measures and the practice investigated were heterogeneous. These issues meant that findings could only account for a static conceptualisation of TSE with relative consistency across different types of practice and time. As such, the studies examined precluded consideration of a dynamic perspective on TSE and of the construction of TSE in the social context of the classroom.

The bridging document (chapter 2) explains the development of an appropriate epistemological stance for exploratory research on the dynamics and co-construction of TSE in the classroom along with implications of this stance for research methodology.

Chapter 3 summarises articles and research relevant to considering TSE as dynamic and socially situated in classroom systems. It then presents the rationale for a piece of empirical research investigating this in the Philosophy for Children (P4C) classroom. The research reported took a constructed grounded theory approach to investigating the experiences of three primary teachers delivering P4C in the classroom. Observation of their lessons and interviews about TSE and P4C were undertaken. The analysis suggested support for the idea that TSE should be investigated in a classroom self-efficacy system and for dynamic processes which support the co-construction of TSE in the classroom. In particular, change, role identity and collective efficacy in the classroom were explored as important factors in creating TSE and practice in the P4C classroom. Tentative evidence for student self-efficacy also being constructed in a classroom system was suggested. In conclusion, chapter 3 considers implications for further research and professional practice. Ethical issues and researcher reflexivity relevant to the research are considered in Chapter 2.

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Chapter 1: What is the relationship between Teacher Self-Efficacy and teachers' practice? A review of the literature.

Abstract

Teacher self-efficacy (TSE) is an often cited factor in teachers' practice and student outcomes. However, researchers often cite a small evidence base to support a positive relationship between higher TSE and better practice. Furthermore, methodological issues apply to the research underlying this evidence base. A systematic literature review of the recent research was undertaken. Seven studies examining the relationship between TSE and practice were found to meet inclusion criteria. A meta-analysis was carried out, giving a small to medium effect size of $d=0.6$. While the correlational data collected by the studies cannot confirm causation, this supports a positive association of TSE and practice. This result was considered in relation to the considerable variation in the relationships found, the variety of practice examined in this small sample of studies and an analysis of study quality. Implications for further research are suggested.

Introduction

Self-efficacy

Bandura's social cognitive theory is concerned with the agency that we experience (Bandura, 2006). In contrast to theories suggesting behaviour is determined by genetic, evolutionary and conditioned factors, agency holds that we are "contributors to life circumstances, not just products of them" (op. cit., p.164). While Bandura (2006) suggested there is no separation between individual agency and the social structures in which we live, agency is considered at different levels. Self-efficacy applies to individuals' orientation to their future capabilities (Maddux, 2005) and is distinct from beliefs about what they are going to do (intentions) and what they feel about their capabilities (self-esteem). Self-efficacy is also distinct from outcome expectancy beliefs, about whether actions will have a particular effect (Bandura, 1997).

Self-efficacy beliefs are task-specific and future-oriented, whilst founded in our internal representations of past experiences (Bandura, 1997). Widely accepted sources are mastery experiences (experiences of success); vicarious experiences (observations of others' successes); imaginal experiences (imagined performance in hypothetical situations); social persuasion by others giving positive evaluations of our performance; and physiological states (where positive or negative emotions and reactions are associated with performances) (Maddux, 2005; Woolfolk-Hoy, 2000).

Self-efficacy beliefs have a role in shaping our cognitive competencies, but are also suggested to contribute independently to performance (Bandura, 1997): low self-efficacy can be a barrier to implementing existing skills, therefore self-efficacy can contribute to vicious or virtuous cycles, influencing our performance.

Teacher self-efficacy

Self-efficacy's role in performance makes it relevant to education (Pajares, 1996). Bandura's (1997) consideration of student, teacher and collective school efficacy reflect levels on which human agency can be understood. Teacher self-efficacy (TSE) is one of a constellation of teacher beliefs: it has been characterised as part of teachers' framework for decision making (Rimm-Kaufman & Sawyer, 2004) and is often researched alongside other beliefs and attitudes (e.g. Andersen et al., 2004; Charalambous & Philippou, 2010).

TSE and Inclusion

The impact of TSE on students' experiences is highlighted by the observation that teachers' beliefs about lacking expertise for teaching certain students can reduce pupils' inclusion in mainstream education (Florian & Black-Hawkins, 2011). Similarly, high collective school efficacy for responding to pupils' home circumstances was linked to fewer student exclusions (Gibbs & Powell, 2011) and low individual TSE was related to high incidences of teachers referring pupils for specialist education provision (Meijer & Foster, 1988).

TSE and burnout

Research has investigated TSE as a buffer to teacher burnout and whether it may be possible to prevent burnout through intervention. While a positive effect of TSE is generally supported, the mechanism for this is not fully explicated, although research has examined contributing factors (Ransford et al., 2009; Rimm-Kaufman & Sawyer, 2004). Skaalvik and Skaalvik (2010) suggested that TSE is negatively related to emotional exhaustion and depersonalisation dimensions of teacher burnout. Similarly, Evers et al (2002) suggested that TSE (for teaching through differentiation, involving pupils with tasks and use of innovative educational practices) was significantly and negatively related to the same dimensions of burnout.

This may result from efficacious beliefs buffering the psychological effects of burnout (Brown, 2012) or from TSE influencing teachers' actions in the classroom. Bandura (1997) cites studies including Gibson and Dembo (1984), which suggested high TSE teachers gave more time to academic activities, better guidance to pupils and more praise for academic achievements than lower TSE teachers. This small body of evidence is regularly cited to support a positive link between good teaching practice and high TSE. For example, de Laat and Watters (1995) suggested that Bandura's TSE predicts that "teachers with high self-efficacy persist longer, provide a greater academic focus in child-centred classrooms and exhibit different types of feedback" (p.453) than low TSE teachers. However, such wide-ranging claims potentially do an injustice to the complexity of TSE and its role in teaching.

Multidimensional concept

Such claims do not readily acknowledge TSE as a multidimensional concept. Maddux (2005) and Bandura (1997) highlighted that self-efficacy is situation specific. Subsequently, research often focuses on TSE for specific actions. Gibbs (2002) suggested four categories of TSE:

- Behavioural: self-efficacy for carrying out an action
- Cognitive: self-efficacy for controlling one's thinking
- Emotional: self-efficacy for controlling one's emotions
- Cultural: self-efficacy for performing actions in culturally appropriate ways

Skaalvik and Skaalvik (2010) found a 6-factor model which separated TSE for instruction; motivating students; adapting teaching to individual need; keeping discipline; cooperating with colleagues and parents; and coping with changes or challenges. However, a widely used measure loads TSE on to just 3 distinct factors (Tschannen-Moran & Woolfolk-Hoy, 2001).

Sources of TSE

A recent review of TSE (Klassen et al., 2011) suggested research on sources is relatively scant. One source of interest is professional development. One year-long development programme based on needs assessment, seminars and workshops was positively related to increased TSE (Bümen, 2009). However, the form of development activities appears to matter. Increased TSE for reading instruction was found from a programme enabling mastery experiences through information-giving, modelling, opportunities to practice and follow-up coaching: however, a programme that just gave information and modelling led to decreased TSE (Tschannen-Moran & McMaster, 2009). TSE may be a factor in maintenance of practices from professional development (Nichols et al., 2006), so the relationship between professional development and TSE is neither simple nor unidirectional.

Outcomes associated with TSE

Outcomes relating to students

One rationale for understanding TSE is its potential to improve outcomes for students. Bandura (1997) suggested that high TSE should contribute to improved student

achievement and motivation and some research has supported this (Thoonen, Sleegers, Peetsma, & Oort, 2011).

Once again, the relationship is unlikely to be simple. Guo et al. (2011) suggest that better student engagement was related to higher TSE but only in schools with high levels of staff collaboration. The relationship may be mediated through the influence of psychological variables, such as expectation, on practice (Rubie-Davies, 2007). For example, teachers with high TSE made fewer negative predictions about student success and adjusted their expectations when student characteristics changed (Tournaki & Podell, 2005).

Teacher beliefs

High TSE can co-occur with other teacher beliefs, such as positive attitudes to new instructional practices (Ghaith & Yaghi, 1997; Guskey, 1988). Almog and Shechtman (2007) found positive correlations between teachers' TSE, democratic beliefs, and generation of strategies for coping with hypothetical pupils' behaviour. Similarly, education undergraduates with lower TSE favoured using control and extrinsic reward in the classroom, and had more pessimistic views of pupil motivation than higher TSE colleagues (Woolfolk Hoy, 2000).

Curriculum

TSE research is often conducted along curricular lines, and has examined TSE for science, physical education and creative curricula (Andersen et al., 2004; Callea et al., 2008; Garvis & Pendergast, 2011; Oreck, 2004).

Issues in outcome research

TSE research is often correlational and subject to the uncertainties about causality inherent. For example, pre-service teachers with higher metacognitive knowledge also had higher TSE (Kim, 2011). It is possible that TSE resulted from higher metacognitive knowledge through experiences of success in learning. Alternatively, TSE may have led to greater metacognitive knowledge through motivation to find out about how learning occurs. Furthermore, other variables may have contributed to both, such as training placements that encouraged consideration of metacognition, and also led to mastery experiences in teaching.

Pedagogy and teacher practice

Research has examined relationships between TSE and classroom practice, through looking at general activities and particular pedagogical approaches. Taking a general perspective, Ashton and Webb (1986, cited by Andersen et al., 2004) suggested that high TSE was related to persistence at tasks, risk taking and use of innovations in the classroom. Considering pedagogical approaches, Czerniak (1990, as cited by Schriver & Czerniak, 1999) suggested that high TSE teachers were more likely to use enquiry and student-centred pedagogies in science than low TSE teachers. Interviews with teachers suggested that TSE contributed to understanding and use of enquiry-based teaching in professional development (Brand & Moore, 2011). Finally, Baysal et al. (2010) and Tebbs (2001) have examined patterns of TSE for teaching thinking skills.

However, a relationship between TSE and practice is not always supported: Haverback (2009) found no link between TSE and pre-service teachers' use of multiple reading strategies and Gerges (2001) found no significant relationship with pre-service teachers' use of a variety of instructional approaches: interviews with participants suggested that other teacher beliefs overrode the influence of TSE, such as beliefs about pedagogical knowledge and students' developmental abilities.

Recent messages from the research

Recent reviews of TSE research have highlighted methodological issues. Although the pace, methodological range and domain specificity of research has increased, the evidence base is still limited. Studies have focused on relationships of TSE with other within-teacher factors and under-examined TSE's sources and influence on student outcomes (Klassen et al., 2011)

Much TSE research relies on self-report measures of TSE, where teachers rate their agreement with statements about TSE. Almost a third of studies examined by Klassen et al. (2011) used Gibson and Dembo's (1984) measure, or measures based on this, despite inconsistencies in its performance in research (Tschannen-Moran & Woolfolk-Hoy, 2001). Debate about TSE as domain-specific or trait-like influences its measurement. Bandura (1997) created the teacher self-efficacy scale (TSES) as a model of good practice, including various levels of task demands. However, Woolfolk-Hoy's (2000) factor analysis of TSES data from novice teachers showed no interpretable structure. The TSES adapted by Tschannen-Moran and Woolfolk-Hoy (2001) was designed around 3 factors (efficacy for

instructional strategies, classroom management and student engagement) and has been positively evaluated (Klassen et al., 2011).

Researchers often investigate domain-specific TSE, using validated global measures or specifically constructed measures (Klassen et al., 2011). However, the latter often neglect Bandura's (1997) definition of TSE and focus on past behaviour, intentions or ability, with up to half not fully matching Bandura's TSE (Klassen et al., 2011). A balance has to be struck between specificity, validity and reliability in choosing a TSE measure, and using task specific TSE measures means sacrificing the generalisability of findings (Woolfolk-Hoy, 2000).

Self-reporting can also be a source of error in using TSE measures. Rating can overestimate TSE in comparison to qualitative accounts (Onafowora, 2005) and items on TSE measures are open to multiple interpretations (Wheatley, 2005). Much research using TSE measures is cross-sectional and correlational, yet experimental, longitudinal and qualitative methodologies may tell us more about TSE and practice (Henson, 2002, cited by Klassen et al., 2011). Therefore, even with a satisfactory TSE measure, research must be critically developed to ensure relevance to the experiences of teachers.

Rationale and scope of this review

As TSE is concerned with individuals' beliefs about future actions, a closely related outcome is what teachers actually do in practice. After my preliminary examination of the literature, it appeared that research often cited to support a link between TSE and practice (e.g. Gibson & Dembo, 1984) relied on questionable TSE measures (Tschannen-Moran & Woolfolk-Hoy, 2001) or considered attitudes to practices rather than actual practice (e.g. Guskey, 1988). Furthermore, research was often dated (such as Ashton and Webb, 1986) or had not undergone peer review publication (e.g. Czerniak 1990, as cited in Schriver and Czerniak, 1999), suggesting that a review of recent peer reviewed research on the relationship of TSE and practice was due.

Research supports differences between the TSE experiences of pre-service and established teachers: TSE rises through teacher training but falls in the first year of teaching, possibly due to reduced professional support (Woolfolk-Hoy and Spero, 2005). Therefore, this review excluded research conducted with student teachers. Furthermore, as TSE is a future-oriented concept the review included research seeking to explore the influence of TSE on practice rather than impact of practice on TSE.

Method

Defining inclusion and exclusion criteria

In order to address the question “What is the relationship between Teacher Self-Efficacy and teachers’ practice?” the inclusion criteria in Table 1 were formulated. Teachers’ practice was conceptualised as the application of teaching and instructional methods in supporting the learning of their students. In most of the literature surveyed, the practice that was investigated was solely the choice of the researchers. Practice variables were used as a way to measure teachers’ use of methods investigated in terms of quality (e.g. how much their teaching resembled the method being investigated) or quantity (e.g. how often the teachers used the method).

Table 1: Inclusion criteria

Setting	<ul style="list-style-type: none">• Pre-school and compulsory education• Mainstream rather than specialist settings, to address the question in inclusive contexts• UK
Participants	Qualified teachers
Design	<ul style="list-style-type: none">• Quantitative data, with some inferential statistical analysis• Cross sectional, longitudinal or experimental
Source	English language peer-reviewed journals, published after 1998. This date limit was set in order to be consistent with other reviews of TSE research (Klassen et al., 2011; Tschannen-Moran, Woolfolk Hoy, & Hoy, 1998) which mark 1998 as a point at which comprehensive guidance about considerations in quality TSE research emerged (op. cit.).
TSE variable	Variable to adhere to Bandura’s TSE rather than other related self or outcome expectancy variables
Practice variable	Measures of past or current pedagogical practice, rather than solely attitudes or intentions

The inclusion criterion “UK context” had to be removed due to a lack of studies originating in the UK.

Search strategy

Database search

The British Education Index online thesaurus was used to find synonyms for “pedagogy” to generate teacher practice search criteria. The databases in Table 2 were searched. Initial searches were carried out with “teacher self-efficacy” as a criterion in the title of the article, though this led to insufficient returns. The search was adjusted to find the following terms in the title, abstract or key words of articles:

teacher* AND self-efficacy or "self efficacy" AND ("pedagog*" or "teach* practice*" or "instructi*" or "teach* method*" or "curriculum" or "teach* style*" or "teach* thinking" or "classroom* quality")¹

Table 2 details the number of studies which appeared to fit the inclusion criteria from database searches.

Table 2: Details of database searches

Date searched	Database	Results returned	Number of articles selected for detailed comparison against inclusion criteria
08/12/11 and 08/01/12	British Education Index	70*	14
08/01/12	OVID (all databases)	0	N/a
08/01/12	Scopus	173*	1
08/01/12	First Search (Article First)	9*	1
08/01/12 and 03/02/12	CSA Illumina Social Sciences databases	1396	35
03/02/12	Web of Science	77	0
03/02/12	EBSCO Teacher Reference Centre	77	0
		Total	49
* Note: figure for results returned is approximate as separate searches were performed for each synonym individually. The figure overestimates the results due to repetition of some of the same articles being returned in different searches			

¹ The use of the asterix (*) enables databases to search for words with the same word stem and different word endings simultaneously, As such, a search using the term “teach*” returns items containing the words “teach”, “teacher”, “teachers”, “teaching” etc.

Citation search

In addition, a citation search was performed. I accessed articles cited to support a relationship between TSE and practice in studies that I read. These were compared against the inclusion criteria. As the inclusion criteria specified peer reviewed journals as a source, textbooks cited were not consulted. Eight additional articles were accessed.

Hand search

In addition, educational psychology journals accessible through Newcastle University Library were searched, with no returns that met the inclusion criteria.

In depth selection process

This involved reviewing the abstracts of 57 articles selected from the database and citation searches in order to determine whether these met the inclusion criteria. At this stage 22 articles were excluded due to not meeting inclusion criteria. 35 were accessed in full for review, including articles where it was not clear from the abstract whether or not the article met the inclusion criteria. After comparison of full text of these articles to the inclusion criteria 13 were excluded because they did not include adequate practice measures (the practice measure considered attitudes or knowledge rather than actual practice, related to responding to students' behaviour or social interactions rather than instructional practice; or there was no statistical measure of practice). 10 were excluded because the research design did not include inferential statistics examining the relationship between TSE and practice or was qualitative. Two were excluded on the basis of TSE measures which did not reflect Bandura's concept of TSE or which reported change in TSE only. Three were excluded on the basis of the context and participants (e.g. the practice examined was not based in a school setting or the participants were pre-service teachers). In total, this final stage excluded 28 articles and 7 studies were included in the review (see Table 3).

Table 3: Selected studies and source

Study	Source
Brown (2005)	Database search
Gorozidis and Papaioannou (2011)	Database search
Guo, Piasta, Justice, and Kaderavek (2010)	Database search
Marshall, Horton, Igo, and Switzer (2009)	Database search
Ransford et al. (2009)	Database search
Thoonen, Slegers, Oort, Peetsma, and Geijsel (2011)	Database search
Justice, Mashburn, Hamre, and Pianta (2008)	Citation search

Assessing quality of studies

The studies' quality was assessed using guidelines from the Evidence for Policy and Practice Information and Co-ordinating Centre (EPPI-Centre, 2007) to consider key quality indicators for empirical studies including ethical issues, reliability and validity. The full commentary on these issues is presented in Appendix A, and Table 4 presents a summary.

Table 4: Quality of the studies

Study	Weight of Evidence A: Taking account of all quality assessment issues, can the study findings be trusted in answering the study question(s)?	Weight of Evidence B: Appropriateness of research design and analysis for addressing the question, or sub-questions, of this specific systematic review.	Weight of Evidence C: Relevance of particular focus of the study (including conceptual focus, context, sample and measures) for addressing the question of this specific systematic review	Weight of Evidence D: Overall quality rating	Study size in relation to sample	Practice measure: Self –report of practice or observation?	TSE measure: Specific or general?	Was a significant positive relationship found between TSE and practice?
Brown (2005)	Medium	Low	Low	Low	Small	Observation	General	No
Ransford et al. (2009)	Medium	Low	Low	Low	Medium	Practice self-report	General	Mixed
Gorozidis and Papaioannou (2011)	Medium	Medium	Low	Medium	Medium	Practice self-report.	Specific *	Yes
Justice et al. (2008)	Medium	High	Medium	Medium	Medium	Observation	General	Mixed
Marshall et al. (2009)	Low	Medium	Medium	Medium	Large	Practice self-report	Specific	Yes
Thoonen, Slegers, Oort, et al. (2011)	Medium.	High	Medium	Medium	Large	Practice self-report.	General*	Mixed, indirect only
Guo et al. (2010)	High	High	High	High	Small	Observation	General	No

* Note: Questions remain about the extent to which these measures reflected TSE over the similar concepts of self-evaluation and confidence.

Statistical synthesis strategy

Petticrew and Roberts (2006) suggest steps for quantitative systematic literature reviews that enable data to be explored in a narrative and, where appropriate, through meta-analysis of the results. These were followed in producing the review. They suggest that meta-analysis is most appropriate when included studies address an identical conceptual

hypothesis (op. cit.). While there is variability in the areas of practice examined in the chosen studies, the shared hypothesis in all studies was that TSE is significantly and positively related to the quality and quantity of the practice examined in each study.

Results

Description and synthesis of selected studies

Research questions

The specific research questions addressed by each of the studies are given in Table 5.

Table 5: Research questions asked by the studies

Study	Research question
Brown (2005)	"...examine if a relationship exists among 1) early childhood teachers' sense of self-efficacy 2) their beliefs about early childhood mathematics and 3) their mathematics instructional practice." p.244
Gorozidis and Papaioannou (2011)	"...the investigation of the network of relations among PE teachers' self-efficacy, goal orientations, attitudes, intentions and past behaviours concerning the implementation of the new curriculum." p.237
Guo et al. (2010)	"1) To what extent do preschool teachers' ...level of educational attainment, certification, years of teaching experience, relate to their teaching self-efficacy? 2) What are the relations among preschool teachers' self-efficacy, classroom quality and preschoolers' language and literacy gains over an academic year? 3) To what extent are the relations between preschool teachers' self-efficacy and preschoolers' language and literacy gains over an academic year dependent on classroom quality?" p.1096
Justice et al. (2008)	"1) to determine the quality of language and literacy instruction in publicly funded preschool programs serving at-risk children 2) to examine the contributions of teacher characteristics (professional experiences, psychological traits), classroom characteristics (composition of children in the class, curriculum type) and characteristics of an instructional lesson (number of children participating; language or literacy lesson) to the quality of language and literacy instruction, and 3) to determine the relationship between procedural fidelity of curriculum implementation and the quality of language and literacy instruction." p.54
Marshall et al. (2009)	"The purpose of this survey study was to examine the relationships among teachers' inquiry behaviours, beliefs and motivation and the factors previously described (i.e. Grade level taught, Support for inquiry instruction, Self-efficacy for inquiry instruction, Subject matter content knowledge training)" p.579
Ransford et al. (2009)	"...whether teachers' psychological experiences (i.e. experiences of burnout and sense of efficacy) and perceived supports for the curriculum were directly associated with their self-reported levels of (<i>curriculum</i>) implementation dosage and quality." "...whether teachers' psychological experiences moderated the relationship between their perceptions of curriculum supports and their self-reported levels of (<i>curriculum</i>) implementation dosage and quality." p.514
Thoonen, Slegers, Oort, et al. (2011)	"...examining the relative impact of leadership practices, school organizational conditions, teacher motivational factors and teacher learning on teaching practices." p.498

Examination of the research questions highlighted that a range of questions is addressed by these studies: most studies examined TSE as one of several variables and occasionally TSE was not the main variable of interest.

TSE measures

Table 6 gives example items from the TSE measure in each study, suggesting heterogeneity. Table 4 (page 17) gives an indication of the specificity with which researchers matched the measure to the area of practice they were interested in.

Table 6: Sample TSE measure items

Study	Example TSE item
Brown (2005)	The TSES (Tschannen-Moran & Woolfolk-Hoy, 2001) was used. "How well can you implement alternative strategies in your classroom?"
Gorozidis and Papaioannou (2011)	"In your school, how confident are you that you can help all your students to..." *
Guo et al. (2010)	"How much can you do to keep students on task on difficult assignments?"
Justice et al. (2009)	"How much can you do to get through to the most difficult students?"
Marshall et al. (2009)	"I can effectively lead students in inquiry".
Ransford et al. (2009)	"If students stop working in class, I can usually find a way to get them back on track."
Thoonen, Slegers, Oort, et al. (2011)	"I'm satisfied with the quality of my work"*
* Note: Questions remain about the extent to which these measures reflected TSE over the similar concepts of self-evaluation and confidence.	

Practice measures

Three studies (Brown, 2005; Guo et al., 2010; Justice et al., 2008) used observation to gather practice data and self-report was used in the remaining four studies. Measures also differed in their focus on the quantity or quality of practice (see Table 7, page 21). Three studies examined practice in relation to prescribed programmes (Gorozidis & Papaioannou, 2011; Justice et al., 2008; Ransford et al., 2009) and four examined teachers' naturally occurring practice (Brown, 2005; Marshall et al., 2009; Thoonen et al., 2011).

Sample size

Study samples ranged from 20 to 1,222. To aid in the consideration of the quality of the studies, these were classified as small, medium and large based on their ranked order from smallest to largest: these classifications are presented with other quality indicators in Table 4 (page 17).

Response rates

Table 7 (page 21) includes the percentage of each sample for whom data was included in correlation calculations for each study, indicating the representativeness of the correlation. These ranged from 21.2% to 85%, however this information was not always available.

Context and date range

Five studies were conducted in the USA and two in mainland Europe. In one case (Gorozidis & Papaioannou, 2011) the research was conducted in response to national curriculum reforms. Three studies (Brown, 2005; Guo et al., 2010; Justice et al., 2008) were conducted in preschool, and two (Ransford et al., 2009; Thoonen et al., 2011) were conducted in the equivalent of UK primary schools. Marshall et al. (2009) used teachers from all stages of compulsory education and Gorozidis and Papaioannou (2011) examined junior high teachers. The studies represented a range of teachers from different contexts, and were published within 6 years of each other.

Data analysis

All studies used correlational data to examine relationships between TSE and practice measures. Five studies conducted further analysis, examining teacher self-efficacy along with other variables relating to practice (Table 8, page 29). Two studies conducted post-hoc analysis to further interrogate data where expected relationships were not initially found (Brown, 2005; Ransford et al., 2009).

Statistical analysis and correlations between practice and TSE

Correlations in these studies (represented by Pearson's r) are reported in Table 7 (page 21) along with probability of significance values. Thoonen et al. (2011) reported correlations without indicating whether these were significant or not; however significance tables for Pearson's correlation coefficients confirm that they are significant at the $p < 0.001$ level (Howitt & Cramer, 2011).

Eleven significant correlations were reported, ranging from 0.2 to 0.38, suggesting some variation in the relationships reported. Eight non-significant correlations were reported. All correlations were in a positive direction. Given the range of correlations and samples in the studies, it was deemed appropriate to find a weighted mean correlation and effect size through meta-analysis.

Table 7: Details of studies included in the synthesis

Authors	Brown (2005)	Gorozidis and Papaioannou (2011)
Participants	20 Preschool teachers	290 Junior High Physical Education teachers (students age 12 – 15)
Response Rate	21.2%	67.4 %
Context and Setting	USA. Large metropolitan school district	Greece. Context of recent national curriculum reform, with increased emphasis on student-centred teaching.
Study Design	Cross sectional 94 teachers completed surveys (100% return rate). A sample of 20 was selected from four quadrants of the data (5 each with <ul style="list-style-type: none"> • High efficacy /high beliefs • High efficacy/ low beliefs • Low efficacy/ high beliefs • Low efficacy/ low beliefs) for observation of their maths teaching practice.	Cross-sectional. 430 teachers from public sector schools in Greece were randomly selected and invited to participate. Participants completed a Likert item self-report questionnaire on 11 variables.
Teacher Self-Efficacy (TSE) Measure	Teachers' Self-Efficacy Scale (Tschannen-Moran & Woolfolk-Hoy, 2001), 24 items.	Developed by the authors, based on Bandura (1997). 3 items on "Self-efficacy in Teaching Plans" 2 items on "Self-efficacy in Teaching Styles" (student centred and teacher-centred) 4 items on "Self-efficacy in promoting Students' exercise self-regulation"
Measure of teaching practice	The Standards Observation Form (SOF), looking at presence of <ul style="list-style-type: none"> • Worthwhile maths tasks • Teacher role in discourse • Student role in discourse • How teacher enhances discourse with tools • The Learning environment • Teachers' assessment of learning 	3 items on Past behaviours relating to proportion of teaching over the previous year coming from the new curriculum teaching plans.
Conclusions	Non-significant relationship between Self-efficacy and observed instructional practices.	Self-Efficacy in teaching daily lesson plans and self-efficacy in promoting students' exercise self-regulation had direct effects on curriculum implementation in the last year. Self-efficacy in the use of student-centred teaching styles had an indirect effect on past behaviour through the other self-efficacy variables.
Statistical Analysis	Correlation. Self-efficacy and observed instructional practices, NS for all 20 participants	Structural Equation Modelling
Pearson's r (correlation coefficient for TSE and practice)	0.242, NS	TSE for teaching plans – 0.35, p<0.001 TSE for promoting self-regulation – 0.32, p<0.001 TSE for student centred practice – 0.30, p<0.001

Authors	Guo et al. (2010)	Justice et al. (2009)
Participants	67 Preschool teachers	135 preschool teachers
Response Rate	Information not available.	Information not available.
Context and Setting	USA	USA 40 State sector funded schools for pupils with social or economic risk factors delivering the <i>My Teaching Partner – Language and Literacy Curriculum</i> .
Study Design	Cross-sectional. Participants were selected from a larger study of language and literacy instruction in preschool classrooms. TSE was measured through questionnaire at time 1 (autumn) and practice was measured twice, at time 1 and time 2 (spring) through observational video analysis and averaged.	Cross sectional. Data were submitted by volunteer participants from a larger professional development study. Participants completed a self-report questionnaire on 10 variables and submitted their choice of video of their teaching for video analysis.
Teacher Self-Efficacy (TSE) Measure	Abbreviated version (11 items) of the Teacher Self-Efficacy Scale (Bandura, 1997) focussing on instructional self-efficacy and efficacy toward creating a positive school climate. Combined to one TSE variable.	Abbreviated version of the Teacher Self-Efficacy Scale (Bandura, 1997) looking at classroom management and pupil motivation. Data were investigated through one TSE variable.
Measure of teaching practice	Observation using Classroom Assessment Scoring System-PreK (CLASS) Emotional Support and Instructional Support subscales.	Observational video analysis of language modelling and literacy teaching using newly developed subscales of the Class Assessment Scoring System (CLASS). The <i>My Teaching Partner – Language and Literacy Curriculum Implementation Checklist</i> was used to measure procedural fidelity of the programme routine and lessons.
Conclusions	No significant relationships between TSE and Emotional Support and Instructional Support subscales of the CLASS.	Self efficacy measure was significantly related to the quality of literacy teaching but not significantly related to quality of language modelling or procedural fidelity variables.
Statistical Analysis	Hierarchical Linear Modelling	Multiple regression.
Pearson's r (correlation coefficient for TSE and practice)	Instructional support – 0.174, NS Emotional support – 0.159, NS	Quality of literacy teaching - 0.2, $p < 0.05$ Quality of language modelling – 0.06, NS Procedural fidelity routine – 0.04, NS Procedural fidelity teaching, 0.14, NS

Authors	Marshall et al. (2009)	Ransford et al. (2009)	Thoonen, Slegers, Oort, et al. (2011)
Participants	1222 Kindergarten to grade 12 Maths and Science teachers	133 Kindergarten to 5 th grade teachers (110 reported in the correlational analysis)	502 Elementary teachers of pupils aged 4 – 12 (493 reported in the correlational analysis)
Response Rate	64 %	85% (70.5% for correlational analysis)	81.9%
Context	USA	USA	Netherlands
Study Design	Cross sectional. Opportunity volunteer sample of teachers from all schools in a school district. Participants completed a 58 item self-report questionnaire on 3 subscales.	Cross sectional All data were collected through a web-based survey, taking 20 minutes to complete.	Cross sectional Opportunity volunteer sample of teachers from 32 schools. Participants completed a 100 Likert item self-report questionnaire on 16 scales/ variables
Teacher Self-Efficacy (TSE) Measure	4 Likert questionnaire items on “Self-efficacy for Inquiry Instruction” developed for study, based on Bandura (1997).	15 Likert item measure of teacher efficacy (based on Gibson and Dembo, 1984).	5 questionnaire items, developed for this study.
Measure of teaching practice	Self-report of percentage of instructional time their pupils engaged in inquiry in a typical lesson.	“Implementation dosage” - Two Likert questions on frequency of implementation of the PATHS social and emotional learning curriculum and supplemental activities. “Implementation quality” - Two Likert questions on perceived quality of their teaching and generalisation of the PATHS curriculum.	18 questionnaire items on constructivist-oriented teaching practices through <ul style="list-style-type: none"> • Process-oriented teaching • Relatedness to students’ work • Cooperative learning • Differentiation
Conclusions	Teachers with higher self-efficacy for teaching inquiry show a higher percentage of time devoted to inquiry during a typical lesson.	Significant relationships reported between efficacy and using supplemental activities, and generalising of concepts but not for frequency of teaching the PATHS curriculum or perceived quality of teaching those lessons. Teachers with low TSE and low administrative support reported less generalising of concepts than those with higher efficacy & admin support.	No direct effect of TSE on their typical use of constructivist teaching practices. Indirect effects of TSE on practice found through the professional learning variables (“Keeping up to date” and “Experiencing/reflecting”).
Statistical Analysis	Correlation	Regression analysis. Post hoc between-group analysis of moderator variables effects for high risk and low risk teachers.	Structural Equation modelling
Pearson’s r	0.318, p<0.001	Supplemental - 0.2, p<0.05 Quality of generalizing - 0.25, p<0.05. Quality of lessons - 0.18, NS PATHS Frequency - 0.12, NS	Process-oriented teaching – 0.33, p<0.001 Relatedness to students work- 0.38, p<0.001 Cooperative learning – 0.28, p<0.001 Differentiation – 0.32, p<0.001

Meta-analysis of the correlational data

Given the heterogeneity apparent in the studies, the Hunter-Schmidt random effects model of meta-analysis was employed (Field, 2001) to calculate a combined mean correlation. All 19 reported correlations between TSE and practice measures were included. This gave a weighted mean of $r = 0.29$ (standard error = 0.019, $p < 0.0001$). This converted to a Cohen's d of 0.6 (Becker, 2000) which suggested a medium effect size based on Cohen's descriptors (Miles & Banyard, 2007). A Chi square statistic was employed (Field, 2001) to examine the homogeneity of the studies in the meta-analysis ($\chi^2 = 422.5$, $p < 0.01$), confirming heterogeneity within the studies (i.e. that the variability across correlations exceeds what would be expected based on sampling error). However, as some correlations were not independent of one another, a limitation is that studies that contributed more correlations had greater influence on the overall calculated effect size than studies which contributed fewer correlations.

Exploring publication bias

In order to explore whether a publication bias may have affected the results of the literature search, Figure 1 shows a funnel plot (Higgins et al., 2005) of correlations plotted against sample size. A funnel plot suggesting no publication bias would have the studies with larger sample size clustered around the weighted mean r of 0.29. Studies with smaller sample sizes would show a spread of correlations on either side of the average. Figure 1 suggests that there may be some publication bias: there is a spread of correlations amongst the smaller sample size studies but there appears to be a skewed distribution with larger sized studies finding larger correlations.

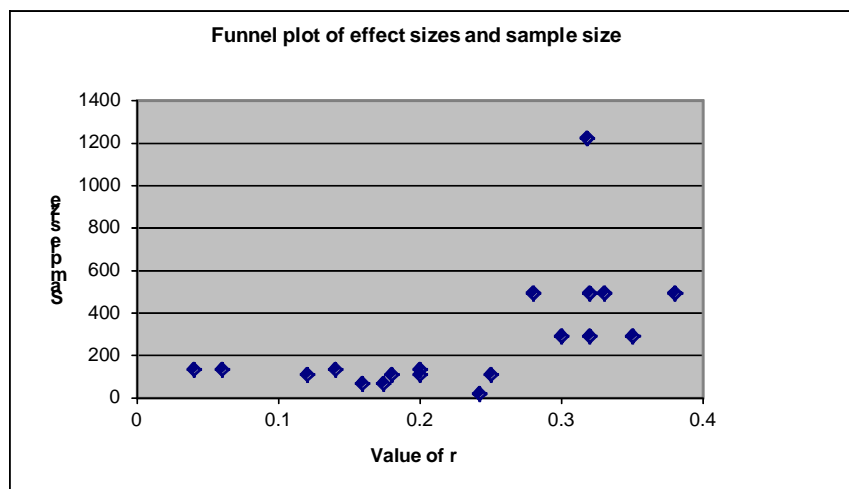


Figure 1: Funnel plot of correlations and sample size

Quality of studies

Issues relating to study quality are highlighted in Table 4 (page 17), including a summary of the EPPI-centre analysis with additional analyses of sample size and TSE and practice measures in relation to their findings.

From the EPPI-Centre analysis, four studies were rated as providing medium trustworthiness: however there are unresolved questions about how representative the measure of TSE was in two of these studies (Gorozidis & Papaioannou, 2011; Thoonen et al., 2011). Studies were generally poor in critiquing the validity of self-report of both practice and TSE. In 5 studies, TSE measures examined TSE as trait-like rather than domain-specific.

The medium quality studies found mixed evidence of a positive and significant relationship between TSE and practice, with the highest quality study (which was small) giving a null result. As such, the meta-analysis weighted effect size supported a small to moderate, significant and positive correlational relationship between TSE and practice, accounting for approximately 8.41% of the variance in the data ($r^2 = 0.0841$). However the range of findings and quality in the studies would suggest that this evidence was equivocal.

Discussion

Conclusion of meta-analysis and summary

Seven studies examining the relationship between TSE and teachers' practice were synthesised using Hunter-Schmidt's method for meta-analysis, suggesting an overall medium effect size for the positive relationship between TSE and practice of 0.6, accounting for 8.4% of the variance. However there was heterogeneity in the correlations reported in these articles, ranging from 0.04 to 0.38.

The studies were further synthesised through examination of shared characteristics (Table 7, page 21) and assessing the quality of the studies (Appendix A and Table 4, page 17). This evaluation revealed that while there was general homogeneity of study design, there was heterogeneity in factors including

- Practice evaluated
- Method of evaluating practice

- Measures used for both practice and TSE
- Specificity of TSE measures
- Sample size
- Scope of the research and other factors considered alongside TSE
- Wider statistical analysis of these factors
- Grade level of pupils taught by the teachers in the sample
- Research questions
- Country of origin of the study
- Overall quality of the studies.

A fuller analysis could examine differences between average correlations of subgroups within the studies, based on some of these factors. However, given the small sample of studies, I felt it appropriate only to highlight some patterns in the findings of the studies. For example, while seven out of the 19 correlations were taken from three pre-school studies, only one significant relationship between TSE and practice was found, yet all correlations drawing on high school teachers produced a significant relationship and 7 out of 9 correlations involving primary teachers were significant. Furthermore, 5 out of 6 correlations for those looking at frequency of practice were significant, whereas 6 out of 13 correlations for practice quality were significant. Finally, ten out of twelve correlations from self-reported measures of practice were significant while 1 out of 7 were significant where practice was observed and rated by a researcher.

Comparison of TSE and practice findings

Significant relationships between TSE and practice

Five studies investigating the relationship of TSE and practice reported significant correlations between these variables. The most significant relationships ($p < 0.001$) all related to pedagogical practices which departed from traditional knowledge-transfer pedagogies. For example, a positive link between TSE and self-reported use of constructivist practices was supported (Thoonen et al., 2011) and more time devoted to inquiry-based learning practices in science was associated with higher TSE (Marshall et al., 2009). Gorozidis and Papaioannou (2011) supported a positive relationship between TSE and self-reported support for pupils self-regulating their exercise behaviour and student-centred teaching methods. All were found using TSE measures that were constructed by the studies' authors rather than previously validated measures.

Positive relationships with TSE significant at $p < 0.05$ related to the quality of literacy teaching from a prescribed curriculum (Justice et al., 2008) and self-reported application and development of a social-emotional curriculum (Ransford et al., 2009). While Justice et al. (2008) used a version of the TSES, Ransford et al. (2009) used Gibson and Dembo's (1984) measure as the basis of their own measure.

Non-significant relationships between TSE and practice

Four studies found evidence contradicting a general positive relationship between TSE and practice. In a prescribed programme, Justice et al. (2008) suggested that TSE was not related to language modelling in interactions with pupils or to teachers' adherence to prescribed aspects of the programme. Ransford et al. (2009) found no link between general lesson quality or frequency of a prescribed social-emotional programme and TSE.

Finally, two studies using versions of the TSES suggested no relationship between TSE and instruction quality where quality was defined as drawing on effective classroom discourse in maths (Brown, 2005) and as being responsive to pupil need and promotion of higher order thinking, learning and participation (Guo et al., 2010).

Interaction of TSE with other factors

Support for practice

Two studies examined teachers' perceptions of the support they received for practice (Marshall et al., 2009; Ransford et al., 2009), suggesting that this was an important factor for maintaining their practice. Only Ransford et al. (2009) examined how this influenced the relationship of TSE and practice. Their analysis suggested that perceived administrative support for the curriculum significantly influenced the quality of generalising teaching beyond the curriculum, but only when comparing teachers with low TSE and low perceived support compared to high TSE and high perceived support.

Other psychological variables

Gorozidis and Papaioannou (2011) found that TSE mediated the effects of psychological variables suggested by Achievement Goals theory (e.g. Dweck, 2000). Therefore, TSE for student-centred teaching appeared to mediate the influence of teachers' performance-approach goals on practice, and TSE for promoting students' exercise self-regulation mediated the influence of teachers' mastery goals on practice.

Thoonen et al. (2011) examined teacher motivation variables to reflect an affective component (perceived well-being and tolerance of uncertainty) and a value component. They found that the influence on practice of values that reflected integration of school goals into personal goals was mediated by TSE and professional development.

Professional development

Thoonen et al. (2011) found a moderating relationship between professional development variables related to experimenting with and reflecting on practice, and keeping up to date with training, suggesting that professional development engagement is stronger with higher TSE.

Organisational level variables

Thoonen et al. (2011) examined TSE in the context of a wider model, taking a systems level perspective (e.g. as advocated by Miller, 2003), by examining organisational variables including collaboration, trust, participative decision making and vision provided through transformational leadership. These influenced the relationship of TSE and practice but only through the internalization of school goals into personal goals.

Explanatory power of wider models

While TSE can account for 8.4% of the variance in practice across all studies, models considering TSE in the context of a wider array of factors have accounted for between 9% and 24.9% of the variance in practice variables (Table 8, page 29), suggesting that it may be most appropriate to consider TSE in its wider context in relation to teacher practice. These models do not yet integrate all professional development, support, motivation and organisational variables in contributing to a fuller explanation of the relationship between TSE and practice. Those models using structural equation modelling (Gorozidis & Papaioannou, 2011; Thoonen et al., 2011) can make slightly stronger claims for supporting a relationship where TSE influences practice rather than vice versa, compared to where results are purely correlational.

Table 8: Additional analyses in the studies

	Analysis and conclusions reported	Goodness of Fit measures and total variance explained.
Brown (2005)	Post-hoc between groups analysis of Low efficacy/Low Maths beliefs and High Efficacy/High Maths Beliefs groups was undertaken. When outliers excluded (n=8), significant correlation found between maths practice and TSE ($r = 0.82$), as well as TSE and maths beliefs ($r = 0.84$) and maths beliefs and practice ($r = 0.66$).	Total variance explained not reported/not applicable. No data on how representative the between group comparisons are of the whole sample, therefore analysis felt to be unrepresentative of whole sample (see Appendix A).
Gorozidis and Papatsoannou (2011)	Authors used structural equation modelling to compute models of factors contributing to (path analysis) past behaviour and intentions for future behaviour. In addition to the direct effects of TSE variables reported in Table 7 (page 21), the contribution of having mastery goals was mediated by TSE for promoting pupils self-regulation. The contribution of performance approach goals was mediated by TSE for student-centred teaching styles and for teaching the curriculum's lesson plans.	Comparative fit index = 0.971 Root Mean square error of approximation = 0.055 Chi squared/ df = 1.61 Data fit categorised by authors as "good". 17% of the variance in past behaviour was accounted for by the TSE, mastery and performance approach variables.
Justice et al. (2008)	Multiple regression model. Quality of literacy focus was also associated with having adult-centred ideas about teaching, keeping to the procedure of the programmes activities and the percentage of pupils in the class with an IEP. Quality of language modelling was also negatively associated with having an advanced degree and positively associated with having attended workshops related to the programme.	Total variance explained in quality of literacy focus was 24.9% Total variance explained in quality of language modelling was 20%.
Ransford et al. (2009)	Individual regression models for "Implementation dosage" and "Implementation quality" were computed, with variables for age and grade level of teacher with TSE. All models including TSE were insignificant with the exception of the model for average number of supplemental activities taught. Post-hoc between groups analysis (ANCOVAs) of low efficacy/low support and high efficacy/high support groups undertaken for <ul style="list-style-type: none"> - Administrative support - Curriculum coaching - Curriculum support for each of the four practice variables. Significant group difference ($p < 0.05$) found only for quality of generalising concepts and administrative support variables. Sample size not reported.	9% variance in number of supplemental activities covered by teacher efficacy, age and grade level taught. No data on how representative the between group comparisons are of the whole sample, therefore analysis felt to be unrepresentative of whole sample (see Appendix A).
Thoonen, Sleegers, Oort, et al. (2011)	Indirect effects of TSE on practice (as moderated through professional development variables of "Keeping up to date" and "Experimenting and reflection) were: <ul style="list-style-type: none"> • Process-oriented teaching = 0.12 • Relatedness to students work = 0.17 • Cooperative learning = 0.17 • Differentiation = 0.13 Other variables included in the final model were: <ul style="list-style-type: none"> • Teacher motivation <ul style="list-style-type: none"> ○ Goals ○ Tolerance of uncertainty ○ Wellbeing • School organizational conditions <ul style="list-style-type: none"> ○ Collaboration ○ Participative decision making ○ Trust • Transformational leadership <ul style="list-style-type: none"> ○ Vision ○ Individual consideration ○ Individual stimulation 	Comparative fit index = 0.936 Root Mean square error of approximation (RMSEA) = 0.049 Standardized Root Mean square residual (RMS) = 0.075 The variation explained for each mode of practice was: <ul style="list-style-type: none"> • Process-oriented teaching = 10.6% • Relatedness to students work = 20.2% • Cooperative learning = 22% • Differentiation = 12%

Limitations of studies in the review

The quality analysis suggested the studies were generally of medium or low trustworthiness in terms of their validity, reliability and generalisability. In addition, Klassen et al's (2011) concerns about measuring TSE were relevant. For example, Ransford et al's (2009) measure was based on Gibson and Dembo's (1984) questionable model of TSE. Where the TSE measure was developed for the study, two raised concerns about the extent to which these reflected TSE. Thoonen et al's (2011) measure may capture work satisfaction rather than TSE, although it is unclear from the example given. Gorozidis and Papaioannou's (2011) measure refers to confidence, without apparent exploration of what this meant to participants.

Four studies considered practice through self-report by participants only. In these studies there is a risk that participants may have conflated self-reported practice with self-reported TSE, resulting in inflated correlations. Finally, the included studies were relatively small. Klassen et al's (2011) review had an overall mean sample size of 620, whereas this review's was 334. In addition, Klassen et al. (2011) found that 62.3% measured TSE through surveys whereas here the equivalent was 100%, suggesting a lack of methodological variety.

Methodological issues

Meta-analysis method

Field (2001) reports that Hunter-Schmidt meta-analyses can lead to null hypotheses being rejected when they should have been maintained. Caution is necessary in accepting the average effect size, as the correlations reported are not all independent of one another. Higgins et al. (2005) suggested resolving this through selecting a main outcome from each study to use in the meta-analysis. This was not done here, as authors rarely identified a main TSE effect and it would have involved prioritising certain findings, without an objective theoretical framework to guide this.

Publication bias

Brief analysis of publication bias suggested it is difficult to draw firm conclusions about the representativeness of this sample. There were fewer smaller studies than expected with correlations larger than the average, suggesting that Marshall et al. (2009), with moderate

correlation (0.318) and a larger sample than other studies, may have inflated the overall effect size.

Epistemology

From a realist point of view, trait-like TSE measures are insensitive to change over time and situation. However, a wider epistemological question exists as to whether TSE is a social construction and whether we can meaningfully measure and compare it across populations.

Conclusions and Future directions

While the meta-analysis suggested support for a positive relationship between TSE and teachers' practice, there was variation in the studies and a small sample, given the breadth of the literature search. As research interest in TSE exists, the lack of research examining this relationship potentially reflects an acceptance of a positive impact of TSE on good practice. However, the variation in the relationships examined by this review suggested that acceptance of a generic positive relationship may disregard the complexity of the relationships between dimensions of TSE and different types of practice.

Given this variation, it would be inappropriate to present strong conclusions from these studies. However, studies that found a positive relationship between TSE and non-traditional pedagogical practices suggest an avenue for further research. Research in this area may benefit from exploration through a more systemic perspective and from efforts to increase the relevance of research to teachers' actual practice. Finally, the review suggests that there is continued value in examining TSE in the context of models that offer wider explanatory power: research using alternative methodologies may offer opportunities in pursuing this goal.

Chapter 2: Bridging Document

Abstract

This chapter leads from the systematic literature review (SLR) in chapter 1 to the detail of the empirical research in chapter 3. I reflect on the academic interests and professional values that drove my engagement in researching teacher self-efficacy (TSE) in the context of the Philosophy for Children (P4C) classroom. I discuss how my epistemology and methodology were shaped and I consider my axiology through a process of personal reflexivity. I outline my ethical standpoint and comment on the major ethical issues in the research and my response to these. I finally reflect on what the research has meant for my practice as an Educational Psychologist (EP).

Aim

Chapter 1 found that some research on TSE and practice examined TSE as trait-like rather than dynamic and complex, prompting my exploratory study into the dynamics of TSE. This chapter details the epistemological, methodological, axiological and ethical considerations that shaped the empirical research presented in chapter 3.

Identifying the research area

My response to examining TSE and practice in the SLR was to examine TSE within a social classroom system. I found relational agency (Edwards, 2004) relevant, in its suggestion that through “engaging the dispositions of others in the zone of proximal development, learners gain new insight into the phenomena they are tackling” (op cit., p.150). I wondered if teachers learned about the self through students in the social context of the classroom (Edwards, 2007). Relational agency has roots in Activity Theory (Leadbetter, 2008), which developed from Vygotsky’s social constructivism (e.g. Vygotsky & Cole, 1978). The empirical research question asks about construction of teachers’ TSE in its social context: therefore, from the outset social constructivism was a relevant perspective from which to consider social processes in TSE construction.

Identifying a philosophical perspective

Systematic literature review (SLR) epistemology

The SLR proceeded from a positivist (Dancy et al., 2010) approach to synthesising quantitative studies. The studies assumed that objective truths about TSE exist, accessible through objective analysis methods. Similarly, the meta-analysis represented an attempt to access an objective truth about the degree of agreement between the studies and about what these studies suggest as a collective. My critique of the studies and the meta-analysis (p.30) questioned the assumption that TSE was examined successfully in the studies. The combined effect size was meaningful only if TSE was understood as static and within-person. Therefore, I rejected this epistemological approach because it denied alternative thinking about TSE, such as TSE as dynamic or as situated cognition (Daniels, 2008).

Resolving epistemologies

This decision led me to consider TSE as teachers' experiences, which represented subjective knowledge grounded in individuals' contexts, thus requiring exploration through subjective means. Nevertheless, the resulting epistemological contradiction between my literature review and empirical research can be resolved. Within a nested mixed-method analysis paradigm (Lieberman, 2005), the large-scale meta-analysis data were judged to lack robust and satisfactory results, suggesting appropriate follow up through small-scale model building research. Although my research journey fits with this framework and my empirical analysis could be researched on a wider scale, it is not clear whether it would suit large-scale analysis. Besides this, the SLR process supported my learning about the research area, which acted as a lens to narrow my research interest and questions. This allowed rejection of the SLR epistemology based on my own learning as a researcher.

Social constructivism

The epistemological stance of my research was determined from the research question (p.47). As the question positioned participants in a social system and asked about their learning about the self in this system, a social constructivist epistemology, based on Vygotskian ideas of learning, development and activity in socially mediated systems (Leadbetter, 2008) was appropriate. Social constructivism suggests that

- Individuals are active in directing their development through interaction with the social world.
- Development is socially embedded rather than structurally determined: it is characterised through dynamic processes, not static stages driven from within the individual.
- Development is mediated by language and contexts that have their own history and culture (Stetsenko & Arievidch, 1997).

The activity represented by the self can be conceptualised as "a way of being in concrete situations" (Stetsenko & Arievidch, 1997, p. 160). Thus, the object of study of the self is not the individual or environment, but social processes that represent this way of being. Activity can be observed and experienced, but neither observer nor experiencer can access a perspective representing the entire truth of the activity. In order to create wider perspectives, we enter discourse (Burr, 1995) wherein we give ideas meaning and expression through language, in order to share them with others. Through exploring meaning we can access some version of subjective truth through what is agreed upon by individuals in discourse (Heylighen, 1993).

Considerations from dialogic epistemology

From a dialogic perspective, words used in discourses bring with them some of the history of the speaker and past meanings imbued in those words (Wegerif, 2008), suggesting there is always some subjective truth that is inaccessible to others. Furthermore, this perspective proposes that “the significance given to an utterance by its past is no more stable than the significance it may be given by those who take it up in the future” (op. cit., p.349), suggesting that dialogue can only offer partial access to the meanings created in discourse. The hermeneutic act of presenting a written analysis required me to present my own partial understanding of data, and created an account which may be disproportionately stable, given its dialogic roots (Wegerif, 2008).

Methodology

Co-constructing knowledge

An implication of social constructivism was the need for my method to facilitate co-construction of partial understandings agreed by those involved in discourse. As co-construction is active, I was a social actor in the research: I brought my prior understandings and experiences to it (Brand & Moore, 2011) and they were active in processes which aimed to co-construct new understandings. Stetsenko and Arieivitch (1997) highlighted that in constructing understandings, some aspects of reality and their chosen descriptions are privileged above others, driven by the prior knowledge and experiences of the researcher and participant. Unlike approaches which seek to separate out researchers’ influence on the analysis, my understanding of social constructivism was that my influence was a necessary force in the creation of new knowledge.

Accessing the social environment

Social constructivist enquiry can examine how an individual’s activity in the social world is transformed into mental experiences and socially constructed phenomena can be studied through active co-construction during an inquiry (Stetsenko & Arieivitch, 1997). This suggests that methods where the researcher and participant are working together towards a shared goal, for example participatory action research (Stoker & Figg, 1998), may be appropriate in some cases. However, in my research the co-construction process of interest is that between the participant and those in their classroom environment. Therefore, the method was designed to capture this social environment through videos of P4C lessons and

getting as close as possible to the context without actively changing existing processes of interest.

Creating space for dialogue

In addition, I chose to use interviews in order to create shared discursive space with my participants through which we explored shared understandings of their experiences. Interviews are social interactions during which both actors are active in what they choose to say such that interview data are inherently co-constructed (Hugh-Jones, 2010). My questions were open ended in order to explore participants' understandings, but I selected them in order to pursue my research questions, highlighting the influence that I had on the knowledge creation in the research. The process of generating knowledge was a product of the interactions between me and the participants, highlighting the localised nature of the knowledge produced. Other participants and researchers in different contexts may have produced alternative findings.

Reflective spaces

Dialogue is a reflective space for creating learning, such as through the generation of metaphors to capture and communicate ideas (Wegerif, 2008). Dialogue was one space that was active in the knowledge creation in my research: another was individual reflection, wherein ideas germinated in interviews were further developed. As such, reflection (Schön, 1995) was another creative process in the method of the research.

Grounded Theory (GT) and Social Constructivism

GT was chosen as the methodology for this research. GT enables exploration of contextualised social processes (Willig, 2008) in an inductive manner (Gordon-Finlayson, 2010) and it provides tools for focusing on dynamic processes (Strauss & Corbin, 1998). In contrast to GT where theory emerges from the data, Charmaz's (2006) constructed GT acknowledges that researchers and participants are social actors in constructing data and analyses, as in social constructivism. GT can be conducted in full or abbreviated forms (Willig, 2008): full GT involves the researcher collecting data several times, potentially from different participants. In abbreviated GT, one set of data is analysed thoroughly. In my research, data were collected from the same participants in three stages, to support relationship development, access to change over time and development of understandings over time.

Ethical considerations

The research drew on relevant professional guidelines (British Educational Research Association, 2011; British Psychological Society, 2009; Health Professions Council, 2008) and the analytical framework of ethics as a process (Stutchbury & Fox, 2009). Therefore, some ethical issues were identified and planned for at the outset, whereas others were resolved as they emerged.

Dual Roles

Throughout the research, I worked in the participants' school as a Trainee Educational Psychologist (TEP), so for some school members I had a dual role. This meant being mindful of situations where confusion might arise and being explicit about my role with teachers and students in each situation. I reflected in advance that I would be guided in all situations by my primary duty of care for the students in the school, as commensurate with both roles.

Traded services

In my TEP context, my services were bought in directly by the school. Traded services raise ethical considerations for EPs, on which guidelines are due to be published (British Psychological Society, 2013). It was a necessary context to be aware of when negotiating the research. For example, both the EP service and school saw the research to be covered by school policies and yet the school had not commissioned the research although they had commissioned TEP services.

Relationship building

Maintaining positive relationships, through flexibility, negotiation and listening, was important throughout for me to work effectively in both of my roles. Positive working relationships with participants were important for them to feel secure in engaging in knowledge creation because individuals need to feel able to change their minds, criticise their own ideas and acknowledge when they do not understand for effective dialogue (Wegerif, 2008). Fundamental to maintaining positive relationships was acknowledging that the interviews represented a reflective space (op cit.) for participants and interacting with them on the basis of their priorities arising from this.

Informed consent

Informed consent was managed by sharing with participants and children in their classes what the project was for, how data would be processed and stored and their right to withdraw, at all stages of the research. I sought written consent from participants (Appendix C) and verbal consent from children in their classes to be included in recorded lessons. Initially I requested that the school support me in obtaining written parental consent for children to be included on video. However the school was unable to manage this, due to having existing signed parental consent for children to be included on video recordings made in school, as negotiated by senior management. In response to the schools' view, I sought advice from Local Authority and research colleagues on using video. Following this, the school sent all children's parents letters in their first language, detailing the project and data processing procedures, and highlighting their right to withdraw. The participants agreed to be available to answer parents' questions and put parents in contact with me if necessary.

Confidentiality

All transcripts were anonymised in order to preserve confidentiality. Due to the small sample size, participants were given opportunities to read how their data were used in versions of the research fed back to the school.

Data storage

All audio, video and transcript data were stored either in locked storage or under password protection. Audio and video data will be kept for a maximum of 5 years.

Personal Reflexivity

Examination of factors which may have influenced findings of a research project can contribute to ensuring the transparency of qualitative research (Yardley, 2000) and can provide the reader with information to allow alternative ways of understanding the research (Banister et al., 1994). As socially constructed research relies on researchers as social participants, this examination is important in giving the whole story of the research.

I engaged in reflexivity throughout my analysis, by considering the role of my prior knowledge in understanding the data through reflective writing, discussion and memo-writing. I discuss applying my method to questioning my assumptions in chapter 3 (p.65), so I present here an account of my personal reflexivity, to highlight how my experiences and interests shaped my engagement with the research topic.

Teacher self-efficacy

My work as an Educational Psychologist (EP) includes supporting teachers to reflect on potential for and barriers to change in their practice. This is apparent in my approach to service delivery, through consultation and solution-oriented approaches (Rees, 2008; Wagner, 2008), as well as my interest in applying psychology through supporting workforce development. I have not been a teacher so I wanted to involve teachers in my research to learn about their experiences in the classroom, through a framework examining thoughts about what was and was not within their competence, as my EP role does. I felt TSE was an appropriate window to consider such experiences through. Following the SLR, I felt that I still lacked understanding of what social processes were important to consider in relation to TSE. Wheatley (2005) reported a similar experience and in response questioned some common assumptions about how to approach TSE research. In particular, his discussion of democratic education reminded me of my experience of supporting an evaluation of P4C and it struck a chord with my values as an EP around social inclusion.

Social constructivism

Much of my TEP practice has used ideas from social constructivism as a framework. Understanding learning as a triad between subject, object and mediational means, (Leadbetter, 2008) has guided my practice through understanding my role as a mediator (Haywood, 1987) working with teachers as adult learners. I have considered my work with teachers as interaction between two learners, each with separate expertise in a problem and each able to benefit and gain new knowledge about the situation through joint problem-solving. I felt that this approach in research would allow me to draw on both sets of expertise in developing understandings.

Although I aimed to create shared understandings, Stetsenko and Arieivitch (1997) suggested that through the process of intersubjectivity, one subject is guided in participation by the other who is more skilled. This is relevant as the research process was not shared at the level of research agenda because I defined the research questions. However, although I guided participants in driving the research, my participants were the more skilled partners in having experiences of TSE. Therefore, I was also guided through the knowledge creation in this research. This was a stance I maintained throughout, while acknowledging my own expertise in framing understandings through the research process.

Thinking skills and P4C

In casework, I often apply my understanding of thinking skills and metacognition, which I see as consistent with my professional principles around inclusion. Florian and Black-Hawkins (2011) described inclusive pedagogies, which embrace learning for all, reject deterministic ideas of ability and see students as community members. Therefore, wanting to understand more about how teachers experience thinking skills was another factor in choosing this topic.

My previous experience of P4C suggested to me that it contributes to equality in the classroom, which resonated with my values of social inclusion. At the time of formulating the research, the government's "Big Society" agenda (Department for Communities and Local Government, 2013) raised questions for me about what psychological experiences might be valuable in preparing individuals to be active in local decision making. Levinson (2011) suggested the skills that young people need to develop in order to participate in local democracy vary according to their community's context and that dynamic pedagogies are likely to facilitate their development. Pedagogies involving dialogue and shared enquiry between teachers and students are relevant in promoting social justice, with more equal student-teacher relationships, shared enquiry and pedagogies developing awareness of self potentially empowering individuals to have further control in their lives (Freire, 1970; Jackson, 2008).

Messages from personal reflexivity

As these aspects of my research also have meaning for my practice as an EP, I judged the worth of my epistemology and subject matter favourably. These judgements will have contributed to my theoretical sensitivity, which gave me a window on my data through which to develop theory (Birks & Mills, 2011; Gordon-Finlayson, 2010). Reflection through memo-writing and engaging in interviews led by participants' interests in response to open prompts were ways to ensure that it was not just my views that shaped the analysis. An example was "planning", which participants raised, but I had not registered in my observations. Pursuing this led to engaging with ideas about teachers' own learning which provided a further window on the data. Furthermore, I recognised many of my values in the comments of my participants, such as the ability for P4C to create equality amongst students. Sharing values may have contributed to relationship building, which was a foundation for generating further ideas.

Conclusion

My engagement with my research topic has been shaped by my professional values and my academic interest in frameworks for understanding how social systems and activity construct our knowledge of the world. This chapter has shown how these interests were built on in order to shape my epistemology, methodology and critical understanding of ethics. The research has given me insight into classrooms as environments where knowledge can be created. I learned about my own self-efficacy, such that I can work with both doubts and beliefs in entering dialogue with other professionals and use uncertainties in creating new understandings. I have had the chance to engage in the complexity of evaluating a body of research that EPs apply in their everyday work. I am struck by the similarity between presenting my analysis as a way of accessing subjective reality and the daily process of presenting similar narratives in casework with children. Seeing this parallel encourages me to continue to think about dialogues, shared knowledge-making and social processes as tools for change in the lives of children.

Chapter 3: An exploratory study of the co-construction and dynamics of teachers' self-efficacy in the Philosophy for Children classroom.

Abstract

Teacher self-efficacy (TSE) has been researched in order to understand teachers' practice, development and wellbeing. Although it is a situation and action specific construct, research methods can often overlook the potential dynamics of TSE. Recent discussion of TSE has proposed it may be considered in a classroom system. A qualitative exploratory study was carried out considering the dynamics of TSE within a Philosophy for Children (P4C) context. Observations of P4C lessons, stimulated reflective interviews and semi-structured interviews were carried out with three teachers who used P4C with their classes. A constructed grounded theory approach was taken to data analysis. Participants offered views on how TSE for delivering P4C is constructed and maintained and on social processes in the classroom that contributed to or were influenced by TSE. Analysis suggested that TSE may be viewed in a dynamic classroom level system, where interactions with students are central and social processes, buffering of positive TSE, collective efficacy and teacher role identity can contribute to understanding this system. Limitations of the study, future research and implications for practice are discussed.

Introduction

Although thinking skills teaching is not statutory (Department for Education, 2013a, 2013b, 2013c), interest in these approaches continues (Department for Education, 2013d; Glevey, 2008). Accessible information for schools highlights that encouraging thinking about thinking can improve student outcomes (Higgins et al., 2011). Teacher self-efficacy (TSE) has been investigated in order to understand teachers' beliefs about their capabilities and subsequent decisions about practice. While research considering TSE for thinking skills pedagogies is emerging (Baysal et al., 2010; Tebbs, 2001), it does not yet suggest how TSE contributes to practice or vice versa.

Teacher self-efficacy

TSE derives from social cognitive theory (Bandura, 1997) and self-efficacy as “what I believe I can do with my skills under certain conditions” (Maddux, 2005, p. 278). TSE is multidimensional (e.g. Gibbs, 2002) and situation-specific (Bandura, 1997). While understandings of sources of TSE are limited (Klassen et al., 2011) research has suggested that positive TSE is a protective factor against teacher burnout (Brown, 2012) and co-occurs with positive student outcomes (Guo et al., 2011; Thoonen et al., 2011). The wider school context appears important in considering TSE (e.g. Rimm-Kaufman & Sawyer, 2004) with higher levels of inclusion linked to whole school collective efficacy (Gibbs & Powell, 2011).

TSE and practice: a literature review and response

Although TSE beliefs are directed towards actions, they may not equate with completing actions in practice. My meta-analysis (chapter 1) found a highly significant correlation of 0.29 between teachers' TSE and practice, accounting for limited variance in practice. The meta-analysis studies suggested that a range of factors were related to TSE. I concluded that TSE and practice should be considered in models which consider interactions and contributions of several factors.

The meta-analysis studies produced correlations, giving limited description of dynamics of the relationship between TSE and practice (where dynamics refers to change over time and interaction with other factors). Despite TSE being specific to particular actions, studies often used proxy measures not matching the practice investigated, resulting in a static representation of TSE.

Studies that overlook dynamics are problematic when considering TSE doubts, which can be productive in driving teachers' reflections and motivation to learn (Wheatley, 2002). For example, where a teacher doubts their ability to motivate students, reflection can prompt experimentation with practice, leading to pedagogical change. Another perspective is that both motivation to adopt new practice and positive TSE beliefs are necessary in changing pedagogy (Southerland et al., 2011). Therefore, different TSE beliefs might be important for shaping practice in different times and contexts (Wheatley, 2002) suggesting the need for greater understanding.

Thinking skills pedagogies

One context requiring a more dynamic understanding is where "power relationships are transformed and learners take a more active role in their own learning." (Wheatley, 2005, p. 748). Common TSE measures do not explicitly reflect the goals of such pedagogies, often assuming that teachers have the goal of pedagogical control in the classroom, whereas teachers can have the goal of students exercising this control (op cit.). Pedagogies where students are encouraged to gain more understanding of their own thinking and learning are an example. Evidence on the developmental trajectory of children's understanding about thinking (Burke & Williams, 2009), the perceived value of higher order thinking for improved cognition and learning (McGuinness, 2005), and the effectiveness of thinking skills approaches for improving affective, cognitive and attainment outcomes (Higgins et al., 2005) highlight why educators wish to intervene to improve students' thinking skills.

McGuinness' (1999) exploration of thinking skills pedagogies suggested the following features (Table 9).

Table 9: Key features of Thinking Skills pedagogies (McGuinness, 1999)

- Need to make thinking skills explicit in the curriculum
- Teaching through coaching and formative feedback
- Taking a metacognitive perspective
- Collaborative learning
- Aiming to create habits of good thinking
- Teaching through
 - Specific thinking skills activities
 - Subject specific approach
 - Infusion approach (all subjects)

Philosophy for Children (P4C) (e.g. SAPERE, 2013) is an enquiry-based thinking skills approach based on dialogic teaching (Mercer et al., 1999). Its sociocultural view of development holds that exploratory talk enhances student outcomes, as demonstrated in students' reading, behaviour, reasoning (Trickey & Topping, 2004) and participation in

classroom discussion (Topping & Trickey, 2007). Adopting a dialogic pedagogy requires teachers to develop teaching practices (Baumfield, 2006). Therefore, the P4C context is one where exploration of the dynamics of TSE is appropriate.

Next steps

Alternative approaches to TSE include an increased focus on the social context in which teachers experience TSE beliefs and their practice: Friedman and Kass (2002) explored the importance of interpersonal relations between teachers and others, and classroom contexts as factors in TSE; Hagiwara et al. (2011) positioned TSE in a classroom system, alongside student self-efficacy (Figure 2); and Putney and Broughton (2011) considered collective classroom efficacy shared between teachers and students.

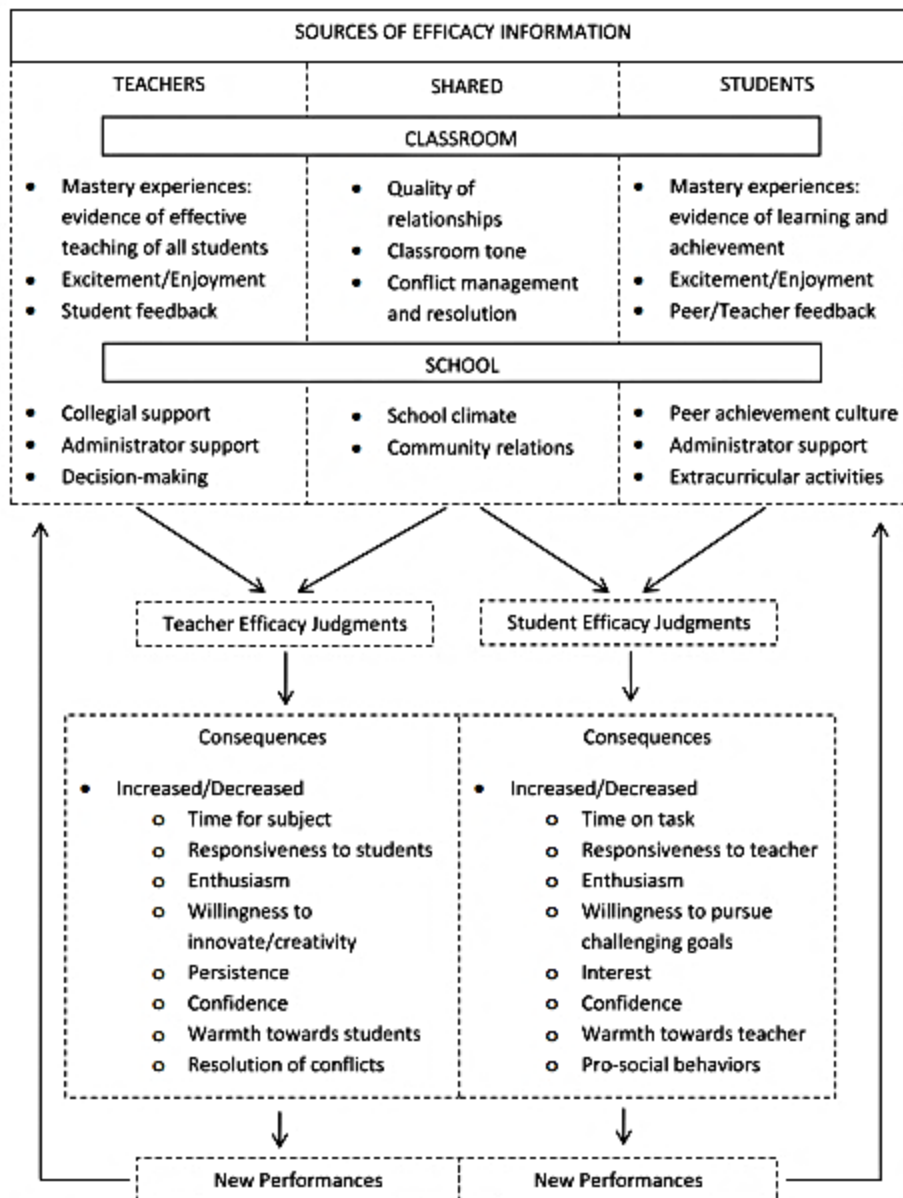


Figure 2: The teacher-student self-efficacy system (Hagiwara et al., 2011)

These conceptualisations of TSE question how TSE is constructed in the social context of P4C, where dialogic processes mean that knowledge discussed is produced in the classroom. The P4C classroom may represent a system in which self-knowledge is also created through engagement with others.

In response to these issues, and calls of Klassen et al. (2011), Wheatley (2005) and Labone (2004) for TSE research in non-traditional teaching contexts, this research explored TSE through a dynamic and social perspective which acknowledged the potential role of the practice context in TSE.

The research questions

The central research question was operationalised as “How is TSE constructed in the P4C classroom?” and was explored through the research questions:

RQ 1: What are participants’ perceived sources for TSE for delivering P4C?

RQ 2: What evidence is there that TSE for delivering P4C is co-constructed in the P4C classroom?

RQ 3: What are the dynamic processes involving self-efficacy and practice in the classroom?

Method

Design and data collection

Data collection was designed in three stages, which were designed as a gradual transition from participants’ concrete experiences in P4C lessons to discussion about their TSE as outlined in Table 10.

Table 10: Stages of research design

Stage of research	Data collection method	Type of data	Format of data
1	Observation of P4C lesson	Naturally occurring talk in a P4C lesson	Transcript of lesson
2	Stimulated reflective interview	Participants’ reflections on their experience in a P4C lesson	Transcript of interview
3	Semi-structured (Participant validation) interview	Participant and researcher talk on TSE	Transcript of interview

Methodological approach

To support an exploratory stance, a constructed grounded theory (GT) approach was taken (Charmaz, 2006) from a social constructivist epistemology. This enabled data collection and analysis that was grounded in participants' experiences rather than the existing literature.

Context and participants

The participants were three Key-Stage 2 teachers from one urban primary school in the North East of England. The school provided training for staff in P4C in 2012, although there was no formal expectation that staff would teach using P4C. Participants were identified by senior management as delivering P4C and were recruited through individual conversations. Therefore, the sample was purposive and self-selected.

Data collection and analysis strategy

Table 11 (page 49) details steps in data collection and analysis and their purpose in the overall design.

Stage 1 data were collected through video-recorded P4C lessons which were transcribed. All participants delivered P4C "enquiries". Teacher talk was open coded for themes representing what participants did, with reference made to the video to disambiguate talk and capture non-verbal communication. Higher order categories were constructed to summarise themes.

Stage 2 data were collected through stimulated reflection interviews (Lyle, 2003). This involved recording a further P4C enquiry by each participant. I selected clips from each video reflecting themes in the Stage 1 data. Within 24 hours, I showed participants the clips and prompted reflection on their in-class experiences with open questions, such as "what were you thinking throughout that section?" and "what do you think was going on there?". Interview transcripts were analysed for themes and tentative theoretical ideas, and to develop further questions about participants' experiences.

Stage 3 data were collected through semi-structured interviews informed by these outstanding questions. Stage 3 interviews served to gain participant views on the contextual validity (Banister et al., 1994) of ideas from stage 1 and 2.

Table 11: Sequence and purpose of steps in data collection and analysis

	Research step	Purpose
Stage 1	Video-recording of P4C lesson	Capturing naturally occurring P4C practice
	Transcription of video	Observing naturally occurring P4C practice
	Line by line open coding	Identifying important participant actions in P4C practice
	Focused coding	Grouping actions into meaningful categorical themes with subthemes
Stage 2	Video-recording of P4C lesson	Capturing naturally occurring P4C practice
	Use of categorical themes to select video clips	Applying my grounded understanding of participants' actions to further naturally occurring P4C practice
	Stimulated reflective interview and transcription	Grounding participants' reflections in their practice
	Line by line open coding	Identifying and grouping participants' reflections on practice.
	Memo-writing	Capturing my own reflections in experiencing the data Developing my views on important codes Developing themes and outstanding questions
	Focused coding	Testing most useful initial codes against the data through categorising. Selecting which codes made most sense of the data in relation to the research questions.
Stage 3	Memo-writing on codes that make most sense of the data	Testing most useful initial codes against the data through describing, asking questions, constant comparison between incidents and participants. Identifying relevant existing theoretical constructs that helped make sense of the data (sensitising concepts) (Gordon-Finlayson, 2010)
	Development of tentative theoretical codes	Beginning to make sense of data in terms of theoretical processes Developing my views on what further data to gather through stage 3 interview (theoretical sampling) (Charmaz, 2006; Gordon-Finlayson, 2010)
	Semi-structured interview and transcription	Seeking participants' views on analysis to date. Developing a shared understanding of ideas from analysis, in terms of tentative theoretical codes.
	Theoretical coding (Charmaz, 2006)	Adapting and applying theoretical codes to transcripts
Stage 3	Open coding	Maintaining openness to new ideas that relate to theory construction.
	Memo writing and diagramming	Exploring processes and links evidenced in data. Constructing the theory

Data analysis was supported through computer programmes, including use of Excel, NVivo and Word. Throughout, criteria in Table 12 were applied to identify statements about TSE.

Table 12: Operationalised definition of a statement relating to TSE

<p><u>Premises used in operationalizing TSE definition.</u></p> <ul style="list-style-type: none"> • A self-efficacy belief is “what I believe I can do with my skills under certain conditions” (Maddux, 2005, p. 278). • There are several constructs that resemble self-efficacy: perceived control, outcome expectations, perceived value of outcomes, attributions, and self-concept. Comparing self-efficacy with these constructs can illuminate the unique features of each (Schunk, 1991) • Self-efficacy is not equivalent to self-esteem (Bandura, 1997), outcome expectancy (the belief that an action will result in the desired effect) (Maddux, 2005), global self-concept or locus of control (Silverman & Davis, 2009) • Self-efficacy beliefs have properties of level, strength and generality (Bandura, 1997) <p><u>Therefore, a statement about TSE</u></p> <ul style="list-style-type: none"> • is future oriented • is about completing a specific or named action • is not a general expression of confidence or self-esteem • has a strength of belief in success • contains a level of capability • is specific to a certain situation • refers to TSE rather than outcome expectancy
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Analysis

Describing P4C activities

Table 13 summarises areas of participants’ activity observed and discussed, along with aims and outcomes that gave actions their unique quality in delivering P4C.

Table 13: What participants were doing in P4C lessons: information from each stage

Stage 1: Participants’ observable actions	Stage 2: Participants’ reported actions
<ul style="list-style-type: none"> • Managing classroom talk – e.g. establishing routines • Giving discussion overall structure • Creating opportunities in talk (e.g. checking understanding, asking follow up questions) • Constructing a role as a facilitator and learner • Supporting thinking (extending, asking, pointing out contradiction) • Therapeutic role (empathic feedback, responding to pupils) 	<p>Outwith the lesson</p> <ul style="list-style-type: none"> • Managing professional autonomy • Planning prior to the enquiry <p>Within the lesson</p> <ul style="list-style-type: none"> • Constructing roles as “Teacher” and “Facilitator” and “Learner” • Building pupil relationships • Executive tasks • Engaging in dialogue • Developing the process with the class • Modelling and extending thinking • Observation of students and reflection to adjust practice • Responding to students • Learning in the enquiry

Stage 3: Participants' aims and outcomes for their actions

- Being flexible to enable students to explore the questions they chose as a group.
- Providing a safe environment for students' thinking and questioning
- Prompting P4C questions that don't have correct answers
- Focussing on student behaviour rather than other academic concerns
- Students learning the P4C framework and understanding what to expect
- Applying procedural knowledge gained through
 - Training and understanding of P4C
 - Practice
 - Understanding P4C goals
 - Observation of other teachers

A concept from this stage, which emerged later as a sensitising concept (Gordon-Finlayson, 2010), was that different actions were associated with different role identities. The summaries in Table 14 demonstrate what these entailed.

Table 14: Descriptions of participant role identities in P4C

Teacher

- gives explicit direction for student actions
- asks and answers direct questions
- delivers content
- makes decisions for the group
- provides scaffolding for thinking
- gives feedback that is corrective
- manages behaviour

Facilitator

- gives starting point
- models rather than gives direction
- aims to spark thoughts or further questions rather than answer a question
- provides scaffolding for thinking
- gives neutral or positive feedback which mostly serves to keep students involved
- aims to hand over ownership of the enquiry to the students
- reinforces ideas from other students, to increase likelihood all students can access them
- encourages self-regulation of behaviour

Learner

- experiences learning within the enquiry
- takes part as an equal in the enquiry
- experiences spontaneous thoughts about the enquiry topic

The nature and co-construction of P4C lessons

Participants spoke of internal working models of what their lessons look like and should look like. Table 15 summarises how these were expressed.

Table 15: Participants’ ideas about internal working models of P4C

Recognised stages of delivering P4C	“Success criteria”: Ideas about what successful P4C looks like
<ul style="list-style-type: none"> • Pre-planning (e.g. finding materials) • Reminding students of rules • Whole class attention to a stimulus • Inviting questions from students • Deciding together what idea, word or question to discuss more deeply • Teacher facilitating discussion and is being led by students’ interest • Teacher including tasks as deemed appropriate to help the enquiry • Monitoring student engagement across class throughout to know when to wrap up • Briefly revisiting initial stimulus or question 	<ul style="list-style-type: none"> • Low level behaviour not an issue • Teacher doing less of the talking, just executive tasks • All students confident to join in • Students understanding in deeper way • There is always learning • Discussion is linking between students <p>Students are</p> <ul style="list-style-type: none"> • Generating questions, including without prompts • Engaged • Feeding back to each other • Responding to others’ comments • Listening, showing respect for others and adhering to group norms • Comparing comments

Participants emphasised that features were flexible across enquiries, with the result that:

“...every philosophy lesson is so different you can’t really have a set of instructions that every philosophy lesson will follow”. (Participant 1)

Some talked of success criteria for what their enquiries should look like, which acted as a tool for reflection. Throughout discussion about P4C, participants emphasised that P4C lessons were co-constructed with their class, through generating topics and questions together.

Teachers’ views on construction of TSE

Stage 3 interviews covered perceived sources of TSE for delivering P4C. Participants’ views on this were initially gathered through open questions such as “What is important for you in maintaining your belief that you can carry out (the tasks in) your P4C lesson?” and “You rated the statement “I can carry out the teaching I need to in a P4C lesson” as x: what is it that lets you know it is not x-1?”. As participants noted the influence of their experiences within the classroom, I asked questions prompting participants to expand on this through questions such as “Tell me about how you see yourself interacting with students in P4C lessons?” and “Is there anything you learn about your success (i.e. TSE) beliefs through your interactions with students?”. Appendix D gives a fuller account of the questions asked in this stage of the data collection.

All participants reported positive TSE beliefs for delivering P4C, with agreement on a scale of 1 – 10 with the statement “I can carry out my P4C lesson” at 8 or higher for all, where 10 represented absolute agreement. Table 17 (page 54) summarises participants’ views on sources of TSE.

Student feedback was a major source of TSE in the classroom and participants described this in detail, as summarised in Table 16. This summary gives an indication of the specific aspects of social interactions that maintained TSE.

Table 16: Types of student feedback

- Receptive to taking part
- Engaged, with a lack of off task behaviour
- Asking questions as part of the enquiry
- Discussing within the lesson, relevant to enquiry
- Discussing the ideas from the lesson in their own time
- Joining in speaking and listening
- Verbal feedback (about the lesson) through explicit comments
- Student enjoyment of content of enquiry
- Student enjoyment of P4C as a way of working
- Students demonstrating their learning
- Students demonstrating motivation, enthusiasm, emotional reactions to the discussion
- Interactions between students within the dialogic P4C framework
- Evidence of thinking
- Student confidence to join in
- Students demonstrating their “trust” in the safe environment through engaging despite participants’ perception of low student self-efficacy.

Table 17: Sources and factors that maintain TSE

Past experiences	<i>I've done it for so many years, I think it's experience (Participant 2)</i>
Relationships with students in current working environment	<i>I think you've got to build up a relationship with the class so you can't suddenly think, right, it's September, week 1, I'm going to do P4C on Thursday, because it does, it will go pear shaped, you've got to build up a relationship, they've got to know you. (Participant 2)</i>
Knowledge of students in current working environment	<i>You've got to know a little bit more of them, their individuality and, the one that sits quietly whether it's anything and everything and it's not just P4C, or the one that's dying to shout out everything or the one that shouts out in P4C (Participant 2)</i>
Self-evaluation	<i>You're just looking round and you can just tell that the children are enjoying their lesson and that you are doing something right (Participant 1)</i> <i>Me as a person doing P4C, I don't think I feel particularly confident yet, I still feel like I've got to learn to be good at delivering that kind of lesson... I suppose I meet my expectations for myself at that point but then I think, yeah but I know that somebody else could be a lot better at this, so let's see what's next to add on to. (Participant 3)</i>
Structural support	<i>I think that at the beginning when I first started, it had to be right and I had to have the right story, the right picture, everything had to fit together. But then I have learnt to move away from being too much constrained (Participant 2)</i> <i>When you are first starting off you might still want to have a more of a structure, more of a scaffolding to your lesson where you've got, you know what your enquiry's going to be, you kind of know where they want to go but as you become more confident with P4C em, so do the children and then it kind of, it passes from me to the children and the children to me (Participant 1)</i>
Student feedback	<i>The kids themselves, afterwards if they come up and say, that was really good and I found out more about something that they've been discussing, it's led them to find something, so that's a bit of the feel good factor (Participant 2)</i> <i>... just the general, general em, the general feedback like the speaking and listening of how many children joined in, when they join in, they're getting motivated, were they enthusiastic (Participant 1)</i>
Seeing in class success	<i>Having had the experience of seeing kids who've gone with it and understand it and asked the questions it's quite satisfying to see that you know you've been a part of that learning. (Participant 2)</i> <i>I suppose it's just a real buzz to think they've got it, yeah they are on board with what we're thinking, they're obviously engaged with it, they're enjoying the idea. (Participant 3)</i>

Considering TSE beliefs as active within a dynamic system

Participants felt that an effect of building positive TSE beliefs for delivering P4C was being able to develop practice through joint learning with their students. Participants saw having a positive TSE belief for delivering P4C as necessary for being able to give control of a lesson over to the students, which they saw as fundamental for P4C.

“...to allow that to happen...to be able to talk about something at the end of the lesson which you didn’t plan for...you do have to be comfortable and you have to be confident that you can do that.” (Participant 1)

However, being able to do this was also contingent on sufficient learning about enquiry by students.

“... both elements have got to be working at the same, they can do it but if they haven’t been taught how to do it... it’s me driving and them following... until they’ve picked up what they are doing and what’s expected and they’re “ah, I know what’s going to come next, now she’s going to ask a question”” (Participant 2)

Change and resilience of TSE beliefs

Participants suggested that changes in TSE beliefs were relevant in understanding TSE dynamics. Growth in positive TSE for delivering P4C occurred during their overall learning process, as they became familiar with P4C and built their experience. One-off incidents reportedly led to minor dips in TSE that overall were buffered.

“Possibly the first one with them because I knew they hadn’t had P4C before and it’s a new class, new structure new everything... I probably dipped...but then probably not as well...Because I can teach...on anything and I can make it into a lesson within a minute”. (Participant 2)

Such incidents included

- Delivering P4C before relationships were established, giving unsuccessful enquiries

- Negative student feedback, such as students not engaging
- Beginning P4C in a new teaching context, requiring new learning to adapt practice.

Participants suggested that incidents were buffered through changing activity or approach, or they were dealt with by rationalisation in terms of other factors.

“...if one or two times...they don’t seem to be enjoying it I would always criticise myself ... so I would give it another go, but if it got to...the third time and I’m thinking, no...I got that right this time, but they’re still not enjoying it then I would take that out of the repertoire of things...to do”
(Participant 3)

“And of course it may be...not...my fault, it might be some of the children, perhaps they had problems at home last night, perhaps they didn’t have their breakfast...There’s so many different variables that it could be that it wouldn’t knock my confidence if I had a bad lesson because it might not be my fault.” (Participant 1)

Participants recognised the process of reflection in action (Schön, 1995), suggesting this was an active process in a system involving TSE. The comment

“...I’m big on praise, I should have told him it was a good idea”
(Participant 1)

was representative of the type of reflection participants experienced in interviews, suggesting reference to their internal working models of P4C lessons in reflection. Participants’ TSE beliefs appeared to be active in a system of TSE, action, student feedback and reflection. A possible cyclical process is represented in Figure 3.

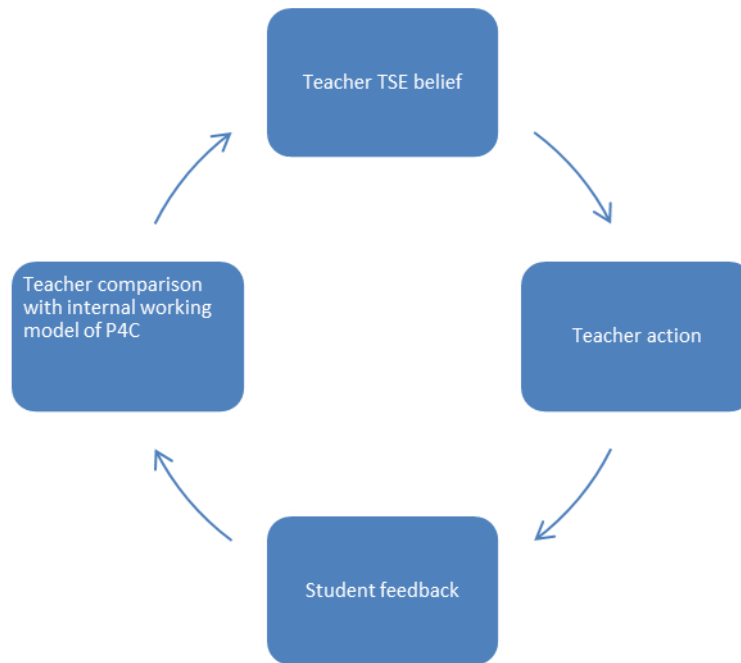


Figure 3: A cyclical system of TSE belief, action, feedback and reflection.

Collective Classroom Efficacy

All participants identified that P4C was co-constructed with students. They agreed that for them to take on the facilitator role in its truest sense they required “I can” beliefs that supported this. However, they made several references to also needing to have “they can” or “we can” beliefs in place.

“...seeing the children enjoy it, the fact that they hit...what it was we wanted to cover, which makes me believe, “oh yeah look together as a team we can do that” (Participant 3)

When asked about their beliefs, participants often referred to beliefs about students’ competence in P4C, suggesting they can experience these as intertwined. When talking about making changes, participants referred to beliefs about students being able to respond to change.

“...I thought it was such a big thing to introduce P4C to the children at all that to expect them to be able to read a story and come up with questions before we even got started...with the discussion, I thought would have been too much... whereas going back in now I... would be more confident to let the children come up with the questions” (Participant 3).

Participants talked about holding “we can” beliefs when they reflected on co-constructed processes in the enquiry, such as when students acted as resources, bringing ideas and questions.

*“It’s a “we can”, you know from having nothing to...having an enquiry ...
“We can come up with something, even though I have nothing, we as a group can come up with something”.” (Participant 1)*

Participants suggested that “I can” beliefs were more active in earlier stages of P4C, when they were in control of the lessons, compared to when they were able to take on the facilitator role and “they can” or “we can” beliefs were active.

“That’s when you are truly the facilitator, when you can start it off and they can take it and you’ve got to just pull the reins back a bit to check that we’ve all answered this question...” (Participant 2)

Participants’ views of factors contributing to “we can” and “they can” beliefs included:

- The teacher-class relationship
- Teachers seeing student successes in the enquiry
- Successful incidents of co-construction of enquiry

Perceived effects of “we can” beliefs held by participants included:

- Students feeling valued
- Participants being able to trust students to carry on without direct support, enabling participants to fulfil the facilitator role
- Feeling able to turn to students as a resource in the enquiry.

Identity roles

Participants’ talk about teacher and facilitator roles revealed that these were not mutually exclusive. However there was a balance with one role identity being at the fore in guiding them. Participants recognised that which role was at the fore was a result of attending to feedback from students.

“I think it’s more teacher led than facilitator at the beginning of training... maybe three quarters teacher, a quarter facilitator but the more experienced that...the children become at P4C...there’s less teacher and more facilitator...” (Participant 2)

This can be represented by extending Figure 3, to show that a possible teacher action was to change role identity in response to student feedback, as outlined in Figure 4. Discussion with one participant suggested that it was possible to have different strengths of TSE belief for carrying out a P4C session dependent on the particular role identity considered.

“...so when it’s three quarters (your) teacher hat (that you have on) then obviously you’re scoring higher on “as a teacher I can do it” and it’s not until you’ve got the higher percentage of doing it as a facilitator do you go up to your ‘I can do this’ (as a facilitator)” (Participant 2)

This suggested that TSE varied according to the role identity that was most active, particularly while the class and teacher were still learning the P4C process. Feedback from students may activate a belief that “I cannot complete this lesson as a facilitator” but also that “I can complete this lesson as a teacher” leading the participant to take on a teacher role identity in order to enable the P4C lesson to continue. Therefore, identity could be a factor in teachers’ TSE beliefs, which may buffer against the impact of negative feedback on overall TSE for delivering P4C, allowing maintenance of positive TSE while learning about the facilitator role continues.

An integrative system of exploratory ideas from the study

Having explored aspects of the dynamics (i.e. change, effects and factors) of TSE in the P4C classroom, it was possible to draw these together in an integrative system.

Figure 4 is visual schematic of how processes may integrate.

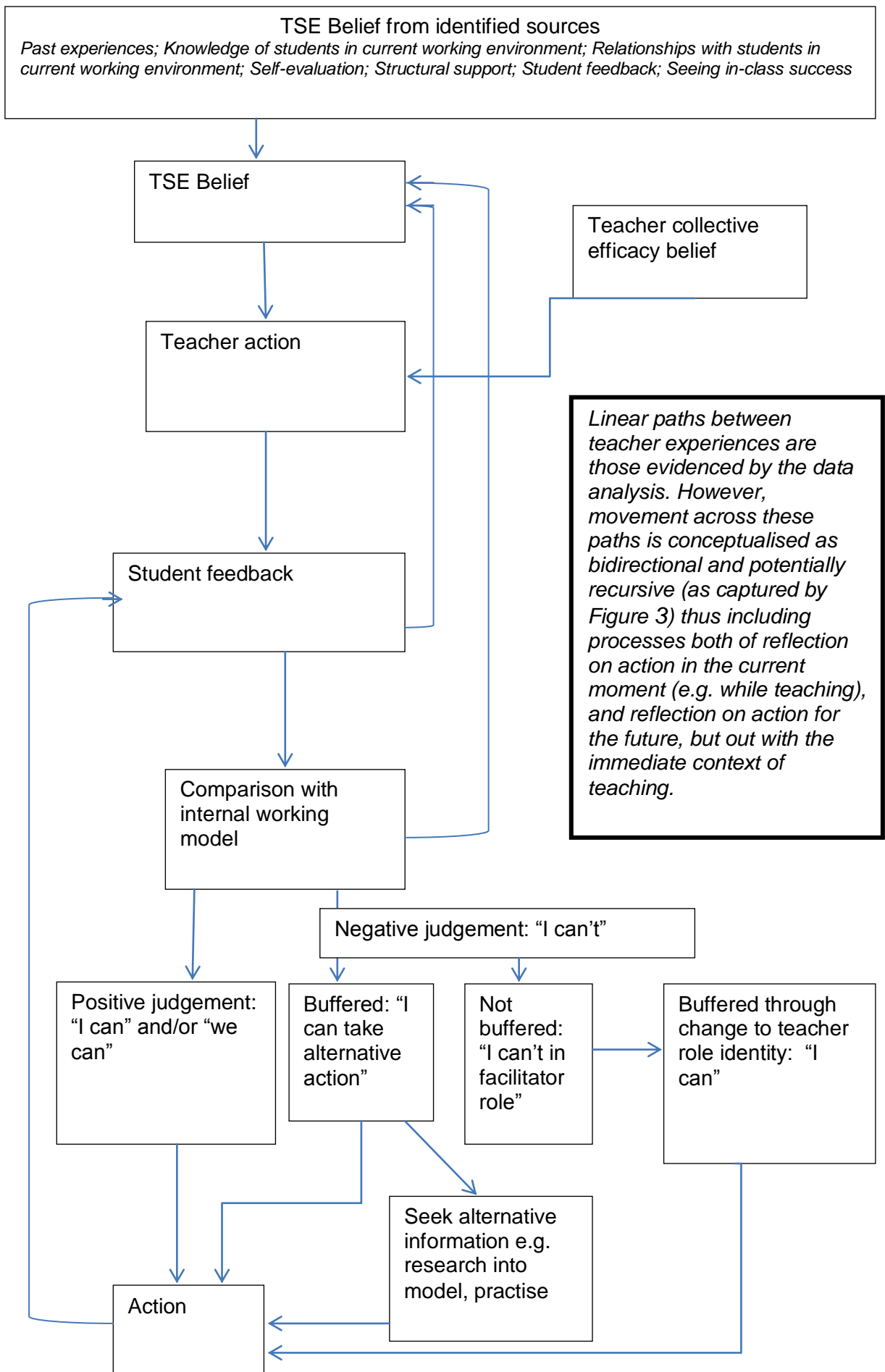


Figure 4: An integrative system of TSE beliefs, practice and social processes.

Completing exploration of the classroom system: student self-efficacy beliefs

Hagiwara et al.'s (2011) classroom system for self-efficacy suggests that student self-efficacy should be included. Therefore, although it includes collective efficacy beliefs, which Hagiwara et al. (2011) omitted, Figure 4 cannot represent a full classroom system without the inclusion of student self-efficacy beliefs. Discussion with participants did not allow for access to student self-efficacy beliefs. However, participants offered views on what factors might be important to explore in constructing student self-efficacy beliefs in P4C classrooms. These are summarised in Figure 5.



Figure 5: Participants' views on potential factors contributing to positive student self-efficacy.

Transfer of TSE beliefs to students

Participants felt their positive TSE beliefs influenced students through participants feeling able to provide a safe environment and encouraging students' own positive self-efficacy beliefs.

*“We talk and we listen to each other and they are valued...they come up with really creative ideas...then they become more positive”
(Participant 1)*

“I think that at the beginning if they haven’t (had)...the freedom to be able to ask a question, without people going “hehehe, don’t be stupid”...it’s got to be nurtured...” (Participant 2)

“...I’m creating an environment in which they feel safe and able to join in, no matter what they wanted to say, nobody’s going to mock, belittle, laugh at them” (Participant 3)

One participant felt this was like the teacher’s belief being transferred to the students.

“...it’s important to have (a positive TSE belief) for all lessons em, because... that should filter down into the children that they feel they want to be successful. If you have a lesson and you think nothing will come of it, then that...feeling goes into the children... (being positive) really has a positive effect on the children and the way that they conduct themselves in a lesson, the way that they speak, the way they listen, it really does help.” (Participant 1)

Although the participant did not explore how this might happen, overall participants’ comments on creating a safe environment and responding to students suggested these may act as a mechanism for this transfer. This is detailed in Figure 6, where Bandura’s (1997) mastery and vicarious experiences are employed as sources of self-efficacy beliefs.

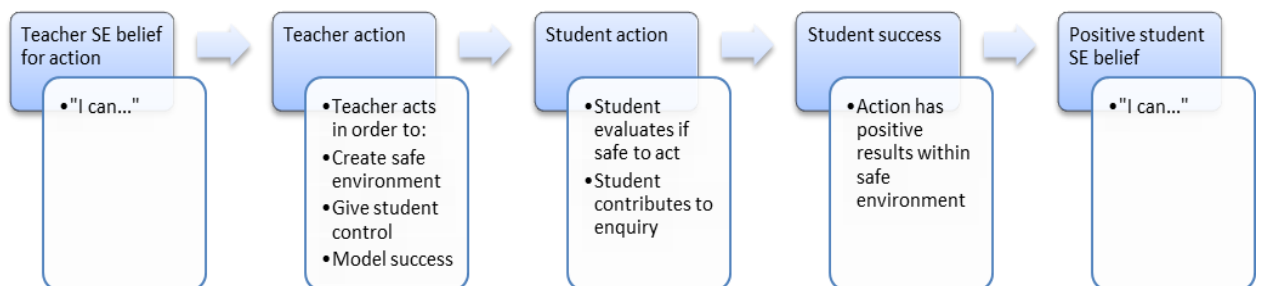


Figure 6: Possible mechanism for transfer of positive SE beliefs from teacher to student

Discussion

Summary of analysis

This study explored factors and processes involving TSE beliefs in the P4C classroom. Throughout discussions, participants identified students and their interactions as important factors in TSE, giving support to the ideas of Hagiwara et al. (2011) and Putney and Broughton (2011), that TSE operates in a classroom system.

Participants recognised actions that I observed them carry out in P4C lessons, most of which were based in student-teacher interactions. They identified that delivering P4C was more than the sum of these tasks, due to their procedural learning for P4C and the shared learning that their classes underwent together.

Participants recognised the importance of student feedback for their TSE and that feedback varied in response to their actions. While experience with P4C was parallel to Bandura's (1997) mastery experiences, student feedback was parallel to social persuasion (Milner, 2002) as a source of TSE. Student feedback was described as a dynamic social process, influenced by factors such as a safe environment, teacher action and students' own self-efficacy beliefs, rather than as a static factor.

Participants' experiences also suggested that a classroom system of self-efficacy in P4C includes consideration of processes that buffer positive TSE beliefs while enabling participants to react to negative feedback. My analysis suggested that TSE may be appropriately positioned in a "plan, do, review" cycle (Figure 3).

Unlike Hagiwara et al.'s (2011) classroom system, participants recognised the role of collective efficacy at the class level as a factor in such a system (Figure 4). Participants recognised that collective efficacy had a buffering function when students were partners in a P4C lesson. Further development of classroom self-efficacy systems could investigate whether collective efficacy contributes to the development of TSE beliefs and how TSE beliefs contribute to the development of collective efficacy. Finally, participants' ideas about role identities in P4C gave further insight into how TSE beliefs directed action and were buffered in the P4C

classroom. This suggests that social identity (e.g. Tajfel, 1974) offers additional ways to understand experiences in the P4C classroom and TSE.

In answering the central research question, participants' TSE was co-constructed at least partially through experiences and student-teacher interactions within the classroom, along with cognitive processes which directed action and teachers' sense-making in terms of co-constructed P4C lessons, identity, collective efficacy and dynamic change over time, all rooted in the social system of the classroom.

Methodological issues

Contextual validity

From a social constructivist epistemological stance, this analysis resulted from discussions between participants and me as researcher. Therefore it was the product of and represents only the research context. Discussion with participants of analysis from stage 1 and 2 suggested that the analysis had contextual validity (Banister et al., 1994). Although stage 3 analyses did not undergo explicit validation, the interviews were designed to lead to co-constructed findings and concurrently sought participants' views of these.

This study has examined TSE in a P4C context. Therefore the analysis and associated alternative ways of thinking about TSE may have limited relevance to teaching contexts which are not dialogic. The participants suggested they had strongly positive TSE for delivering P4C, so there may be reduced relevance for contexts where teachers experience lower TSE for delivering P4C.

Grounded theory

Theoretical Saturation

Constructed GT (Charmaz, 2006) has implications for the understanding of this research. Traditional GT aims for theoretical saturation (Strauss & Corbin, 1998), where new data and analysis no longer provide new insights (Willig, 2008). As constructed GT is based on active meaning making, claiming saturation of the data can foreclose analytical possibilities in the data (Charmaz, 2006). Therefore, mine is one possible analysis, shaped through the processes of interaction and reflection in which the participants and I engaged. Further interaction could lead to new analyses.

Theoretical saturation has also been interpreted as a stage at which the researcher identifies there is structure in the data which supports a theory (Birks & Mills, 2011). This analysis resulted in construction of an integrated model which transforms the data from description to process, suggesting a coherent product. Some GT analyses use selective coding (Gordon-Finlayson, 2010) at later stages, whereas I used theoretical and open coding to examine all data in relation to this product, akin to abbreviated GT, where data are continuously interrogated for new ideas (Willig, 2008). Therefore, my analysis was rigorous and contained safeguards against foreclosure of analysis, which have value equal to theoretical saturation in determining analysis quality (Charmaz, 2006).

Sample size

The sample represented the majority of teachers who delivered P4C in their school, but in relation to other GT studies it was small (Charmaz, 2006). Adequate sample size in GT relates to the claims made by the study (op. cit.). This sample size is justified due to the study's claims and epistemology, that the knowledge produced was representative only of the research context. The extent to which the analysis supported the construction of a coherent theory is another determinant in considering sufficient sample size. GT procedures suggest adding to the sample until theoretical saturation is reached (op cit): As this analysis created a coherent product, it was not deemed necessary to continue sampling. Exploring the product of the analysis in a wider sample or different could enable larger claims to be made about its relevance.

Larger sample sizes enable researchers to question their assumptions about their research, through exposure to the variation in a wider sample (op cit.). Instead my assumptions were challenged through reflection, discussion with colleagues and memo-writing. Effort was made to avoid assumptions by not using existing psychological concepts until they had earned their place in the analysis (Birks & Mills, 2011). My awareness of existing concepts enabled me to frame my coded data according to sensitising concepts of collective efficacy, identity and change, rather than drive my sense-making according to existing ideas. When I recognised sensitising concepts, I shared them with my participants as a way of understanding their comments in stage 3 interviews. Therefore, explicitly and openly checking these ideas with my participants enabled them to be co-constructed, rather than constructed against my assumptions.

Data elicitation

Video

Stimulated interviews (Lyle, 2003) entail uncertainty about whether the experiences that participants reflect upon represent true experiences, because video provides participants with a different view on their experience, by showing them themselves and other activity they did not see during the recording. Although the video connected participants to their classroom context, it is unknown how much they accessed an altered view of their experiences. All participants were shown clips in stage 3 and felt that they were consistent with the interview discussions. This suggested some consistency between participants' self-reported experiences and their observations of themselves experiencing P4C contexts, but this check does not allow for strong claims or fine grained analysis.

Research that enables participants to create their own reminders about classroom experiences such as photos, audio and diary may limit the amount of new information participants receive when reflecting, and create more representative accounts of their experiences. Alternatively, action research frameworks that encourage change could employ video as an agent of change (e.g. Strathie et al., 2011) in future explorations of co-constructed TSE.

Interview

Elicitation of data in interviews across research stages went from being participant to researcher led, in order to focus on the research questions. Throughout, the extent of participants' understanding of TSE as different from other self-concepts was unknown. I gave participants examples of TSE beliefs, and applied an operationalized definition of TSE statements (Table 12, page 50) throughout stage 3 interviews and their analysis. However, it could not be observed what concept of TSE was active for participants during interviews. While some participants found it easier to talk of "confidence" than TSE, others appeared to see this as separate. Further research may benefit from further opportunities to develop shared understandings of TSE between researcher and participants.

Future research

This study was a step in investigating a system of classroom self-efficacy, such as that of Hagiwara et al (2011). Although participants offered description of possible factors in student self-efficacy processes (Figure 5 and Figure 6), future empirical

research into classroom self-efficacy systems should explore students' self-efficacy and collective efficacy experiences. Participants and I talked of "we can" beliefs; however we do not know whether their students recognised these.

Implications for professional practice

This study has relevance to those supporting teachers in their development of dialogic practices. Support may usefully involve reflection that includes consideration of social processes in the classroom and reflection on both individual TSE and collective efficacy beliefs. Reflection can make use of video to prompt thinking about efficacy experiences within lessons. Whole school approaches to developing new pedagogical practices could draw on support to buffer positive TSE beliefs, perhaps through peer reflection.

Support for teachers using other pedagogical approaches may usefully begin to consider TSE and student self-efficacy as part of a dynamic classroom system. Considering contradictions between different role identities in pedagogical contexts may provide a problem solving framework for situations where teachers and students develop negative self-efficacy beliefs. Understanding self-efficacy in a system of social processes may also support professionals in other contexts, such as multiagency settings, where dialogic approaches are part of working with everyday complexity.

Implications for Educational Psychology practice

In supporting teachers through consultation, EPs may benefit from considering their TSE cognitions as products of social classroom systems, as the analysis suggests that these cognitions have roots in socially situated actions, collective efficacy judgements, socially situated identity roles and feedback from others. As such, the analysis can provide a framework for EPs and teachers reflecting on practice and TSE beliefs during consultation, away from the rapid reflection in action that happens in the classroom while teaching (e.g. Eraut, 1995). The analysis can also support consultation through giving insight in to the tensions apparent in TSE beliefs, with both doubts and positive TSE beliefs having potential to lead to practice development and learning. Furthermore, the analysis suggests that encouraging teachers to consider their perceived role identities (e.g. as a teacher or facilitator) may give them additional insight in to their practice and related TSE beliefs.

For EPs supporting workforce development, the analysis reinforces the value of training models that support teachers' learning over time about both their TSE beliefs for the practice of interest and practice itself. In addition, the analysis supports training models that give teachers opportunities to consider both TSE and practice in the social contexts of their own classrooms. Finally, in terms of considering outcomes for children, the analysis tentatively suggests that teachers' TSE beliefs may be a source of students' own self-efficacy, with associated implications for student learning experiences and outcomes.

Conclusions

This analysis of TSE for delivering P4C supports assertions that the dynamics of TSE are important in practice (Wheatley, 2002) and that they can be examined in a system (Hagiwara et al., 2011) that acknowledges the co-construction of TSE. The analysis suggested that different TSE beliefs were active at different times as teachers' learned and developed dialogic approaches with their classes and maintained their practice. TSE dynamics were influenced by social interactions and reflection about practice. TSE "doubts" (Wheatley, 2002) led to participant actions to develop practice. Doubts also led participants to change role identity in order to preserve positive TSE (akin to Southerland et al., 2011) and maintain practice. This change was informed by teacher judgements about students' current competence as well as their own, emphasising the need for decisions and dynamics to be examined within their social context and consideration of collective classroom efficacy (Putney & Broughton, 2011).

The analysis further details specific processes that add to understandings of how TSE works in a dynamic classroom system (Figure 4). Consistent with Hagiwara et al. (2011), the study suggested that TSE judgements produce new performances. The analysis suggested that an important addition is collective efficacy and the consequences of both "we can" beliefs shared across teachers and students, and "they can" beliefs: participants' comments on their views of their students' self-efficacy supported that these types of efficacy judgement occur. Participants' ideas about their own impact and other influences on student self-efficacy suggest further ways in which understandings of class self-efficacy systems can be extended. Accessing student views on these processes and self-efficacy in P4C contexts would be an appropriate next exploratory step.

As my systematic literature review suggested, research which considers the strength of the relationship between TSE and teacher practice can result in an oversimplified exploration of the complexity of the relationship between TSE and practice. Furthermore, it often highlights the need to consider wider contexts and factors in this relationship. Research which attempts to explore processes which are active in the relationship of TSE and practice may be able to illuminate not only the quality of the relationship, but also suggest ways of applying understandings of TSE in order to improve experiences for teachers and their practice in supporting improved outcomes for children and young people. A challenge for future research which seeks to apply understandings of classroom processes around TSE and students' experiences will come from the need to translate and test new ideas from rich small scale research to generalizable research with larger populations, without resorting to reductive conceptualisations of TSE and without losing the importance of individual classroom contexts. This analysis suggests that development of the empirical evidence for and research practices around classrooms as self-efficacy systems may be a fruitful path to continue on.

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Appendix A: Weight of Evidence Evaluation

Study	Brown (2005)	Goroizidis and Papaioannou (2011)
Are there ethical concerns about the way the study was done?	No, no evidence for specific concerns.	No, no evidence of ethical concerns.
Were students and/or parents appropriately involved in the design or conduct of the study?	No, no information on planning study included.	No, no information on planning study included.
Is there sufficient justification for why the study was done the way it was?	No, insufficient explanation of rationale and limited theoretical justification for selecting purposeful subset of teachers for observational analysis instead of random sample.	Yes, in that theoretical issues of interest were clearly linked to the variables used in the questionnaire, but no exploration of alternative methods.
Was the choice of research design appropriate for addressing the research question(s) posed?	No, design led to a very small sample of teachers' with data on teaching practices compared to total number of participants.	No, insufficient exploration of whether teachers could self-report accurately on the proportion of teaching from new curriculum over the past year.
Have sufficient attempts been made to establish the repeatability or reliability of data collection methods or tools?	Yes, some attempt. TSES is an established measure, used in its full form. The author reports previous reliability findings of the practice measure: they state that this measure requires interobserver procedures but that this research was not large enough to warrant this.	Yes, good. Pilot study carried out with 138 participants prior to this study. Alpha reliability tests carried out (TSE for Teaching plans = 0.93, TSE in Teaching Styles = 0.89, TSE for Promoting Exercise self-regulation = 0.93 and for past behaviours = 0.97). All alphas for these variables were above 0.82 for final data collected as well.
Have sufficient attempts been made to establish the validity or trustworthiness of data collection tools and methods?	Yes, some. The original process of validating the TSES discussed in relation to original paper where this was validated (Tschannen-Moran and Woolfolk Hoy, 2001). Standards Observation Form examined in context of Professional Standards documentation.	Yes, good. Exploratory factor analysis carried out as part of Pilot study and confirmatory factor analysis carried out with final data collected in addition. Both analysis gave similar results.
Have sufficient attempts been made to establish the repeatability or reliability of data analysis?	Yes, analysis process described in detail.	Yes, some attempt. Description and reporting on descriptive statistics, construct validation and reliability good, but no detail of order in which variables were entered in the structural equation modeling.
Have sufficient attempts been made to establish the validity or trustworthiness of data analysis?	No, no discussion of why individual correlations were computed rather than one model incorporating all variables.	Yes, some attempt. For example, findings from confirmatory factor analysis were compared to previously stated theoretical assumptions.
To what extent are the research design and methods employed able to rule out any other sources of error/bias which would lead to alternative explanations for the findings of the study?	A little, as non-significant relationship reported with tentative conclusion to consider other factors in addition.	A little. The reader is unable to rule out opposite causation of past teaching behaviour causing efficacy as analysis is correlational, but use of Structural Equation Modeling allows slightly more confidence in proposed causal links.
How generalisable are the study results?	Very small sample and practice measure used based on specific national context, which raises questions about the generalisability of the findings.	TSE measures are very specific to area being investigated. No measures taken by researchers to examine accuracy of past teaching behaviour and unclear what parallel variable would be in study where no new curriculum, which raises questions about the generalisability of the findings.
In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study?	No difference in conclusions.	No, I agree with conclusions where the question of causality is left open.
Have sufficient attempts been made to justify the conclusions drawn from the findings, so that the conclusions are trustworthy?	Low Trustworthiness. Additional exploration of subgroups until significant relationship found suggests researchers did not feel results were fully trustworthy.	Medium trustworthiness due to the lack of exploration of accuracy of self-report on past teaching behaviour.
Weight of evidence A:	Medium	Medium
Weight of evidence B	Low	Medium
Weight of evidence C	Low	Low
Weight of evidence D	Low	Medium

Study	Guo et al. (2010)	Justice et al. (2008)
Are there ethical concerns about the way the study was done?	No, no evidence for specific concerns.	Yes, some concerns: Research group linked to curriculum being investigated, conflict of interest stated.
Were students and/or parents appropriately involved in the design or conduct of the study?	No, no information on planning study included.	No, no information on planning study included.
Is there sufficient justification for why the study was done the way it was?	Yes, through exploration of the theoretical constructs, and reasons cited for choice of variables of interest.	Yes, variables explored are linked to literature and aims in introduction.
Was the choice of research design appropriate for addressing the research question(s) posed?	Yes, completely, however gathering TSE information at time 2 as well as time 1 may have provided further useful information: is there also a relationship between change in efficacy and changes in pupil gains?	Yes, completely. No evidence of "data mining", but no critical discussion of whether questionnaire was best method.
Have sufficient attempts been made to establish the repeatability or reliability of data collection methods or tools?	Yes, good. Previous research or reliability measures applied to this study are presented for all measures. Detailed description of current study would support replication. Rater reliability considered in terms of observation.	Yes, good. TSES has a reported internal consistency alpha of 0.85.
Have sufficient attempts been made to establish the validity or trustworthiness of data collection tools and methods?	Yes, some. However, specificity of TSE measure for practice being investigated not fully explored, TSE measure used as trait measure (not specified to literacy and language).	Coders of the CLASS underwent training, had to achieve 80% of codes within set margin of Master coding scheme. Interrater reliability of 88% for literacy teaching ratings.
Have sufficient attempts been made to establish the repeatability or reliability of data analysis?	Yes, procedure described in detail.	Yes, some attempt. Links made between measures and their development in context of previous research and literature, but no specific consideration of the validity discussed.
Have sufficient attempts been made to establish the validity or trustworthiness of data analysis?	Yes, hierarchical linear modeling to examine nested relationships within the data.	No. Multiple regression carried out but no discussion of method for entering variables/order of variables for example.
To what extent are the research design and methods employed able to rule out any other sources of error/bias which would lead to alternative explanations for the findings of the study?	A little. Small sample. Other variables that may covary with TSE not fully considered, but appropriate given the focus on relationship to pupil outcomes in addition.	No, none. Little discussion of the validity of TSE measure, although consideration given to fact video submitted may not be representative of usual teaching practice.
How generalisable are the study results?	Preschool teachers only were examined in a small sample and single context. There was a lack of detail on the representativeness of the sample for the population examined (no response rate for example), which raises questions about the generalisability of the findings. However, the study was looking at general practice rather than a specific programme, which may increase the generalisability within this preschool context.	A little. Acknowledged that total variance explained was in low range. The small sample, preschool only context and specific curriculum context investigated raises questions about the generalisability of the findings.
In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study?	No, n/a.	No, n/a.
Have sufficient attempts been made to justify the conclusions drawn from the findings, so that the conclusions are trustworthy?	Not applicable (results and conclusions inseparable).	Medium trustworthiness.
Weight of evidence A:	High trustworthiness	Medium
Weight of evidence B	High	High
Weight of evidence C	High	Medium
Weight of evidence D	High	Medium

Study	Marshall et al. (2009)	Ransford et al (2009)
Are there ethical concerns about the way the study was done?	Yes, some. High response rate due partly to encouragement by curriculum co-ordinators supported this or otherwise across the district and no detail has been given of how researchers supported schools with this.	No, no evidence for specific concerns.
Were students and/or parents appropriately involved in the design or conduct of the study?	No, no information on planning study included.	No, no information on planning study included.
Is there sufficient justification for why the study was done the way it was?	No, only detail of choice of method is that the survey had been developed as part of a larger study, however theoretical issues of interest were clearly linked to the variables used.	Yes, in that theoretical issues of interest were clearly linked to the variables used in the questionnaire, but no exploration of alternative methods.
Was the choice of research design appropriate for addressing the research question(s) posed?	No, insufficient exploration of whether teachers could self-report on the percentage of time spent on inquiry instruction accurately.	Yes, but it is unclear why statistical analysis design was chosen: individual regression models were computed for individual variables of interest rather than a full model including all variables.
Have sufficient attempts been made to establish the repeatability or reliability of data collection methods or tools?	Yes, some attempt. Reliability of TSE measure assessed with Cronbach's alpha (0.87), however, no exploration of the reliability of the inquiry instruction measure.	Yes, some attempt. TSE (and burnout) measure was standardized and has been used in other studies. There was little discussion of the accuracy/reliability of asking respondents to self-report on time spent on various activities.
Have sufficient attempts been made to establish the validity or trustworthiness of data collection tools and methods?	Yes, some attempt. Questionnaire data checked with Principal Components Factor Analysis (varimax rotation) and TSE items measuring construct distinct from other questionnaire items. No exploration of the validity of the inquiry instruction measure.	No. Recent literature (Tschannen-Moran and Woolfolk-Hoy, 2001) has examined the issue of validity and reliability of the TSE measure used. The authors of this study do not address criticisms from this study or discuss the two-factor structure of this measure. No exploration of the validity of participants self-reporting on their practice.
Have sufficient attempts been made to establish the repeatability or reliability of data analysis?	No, none. For example process for controlling for variables (level and content area taught) was not described.	Yes, analysis process described in detail.
Have sufficient attempts been made to establish the validity or trustworthiness of data analysis?	No, none. It is unclear why individual correlations are reported rather than a model incorporating all variables is reported when multiple variables have been measured.	No, choice of computing individual regression analyses for different psychological and support variables, rather than one model incorporating all variables, appears to not have been explained. Representativeness of post-hoc between groups analysis not reported.
To what extent are the research design and methods employed able to rule out any other sources of error/bias which would lead to alternative explanations for the findings of the study?	Not at all, as no overall model was reported. This can limit the extent to which causality between variables can be suggested (some inference made about causality on page 591). In addition, there was no exploration of the relationship between TSE and practice once other factors which showed significant effect were controlled for (such as experience and level of support).	A little. The combination of high burnout and low efficacy was not investigated, which may have given more detail on alternative high risk groups.
How generalisable are the study results?	The large sample means that results may be generalisable to rest of the school district, as respondents recognized to be representative, but possibly restricted by teachers' subject area. Naturally occurring practice was examined, which may increase the generalisability of results to other contexts.	Medium sample and specific curricular context investigated, which raises questions about the generalisability of the findings.
In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study?	Yes, I would argue that there is not sufficient evidence that "self-efficacy is important but not individually sufficient to make the necessary transformation to more inquiry-based teaching" p.591. Inquiry practice may have causal impact on self-efficacy.	No difference in conclusions.
Have sufficient attempts been made to justify the conclusions drawn from the findings, so that the conclusions are trustworthy?	Conclusion that "teachers who possess a higher self-efficacy for teaching inquiry show a higher percentage of time devoted to inquiry during a typical lesson" p. 588 has medium trustworthiness due to lack of critical examination of accuracy of self-report of time spent on inquiry.	Medium trustworthiness. However conclusions are possibly too vague to be much use, suggests researchers may have doubted the trustworthiness of the results.
Weight of evidence A:	Low	Medium.
Weight of evidence B	Medium.	Low
Weight of evidence C	Medium.	Low
Weight of evidence D	Medium.	Low

Study	Thoonen, Slegers, Oort, et al. (2011)
Are there ethical concerns about the way the study was done?	Yes, some concerns. School boards recommended to schools that they take part for schools to get insight into their capacity to improve teaching and learning, but no detail of how researchers supported this or otherwise. Were there adequate support mechanisms in school for this to be formative rather than used for summative judgements in school?
Were students and/or parents appropriately involved in the design or conduct of the study?	No, no information on planning study included.
Is there sufficient justification for why the study was done the way it was?	No, questions about impact of school leadership included but no critical discussion if sufficient data would be gathered through questionnaire only.
Was the choice of research design appropriate for addressing the research question(s) posed?	Yes, initial model presented on which research was theoretically grounded, but no critical discussion of whether questionnaire was best method.
Have sufficient attempts been made to establish the repeatability or reliability of data collection methods or tools?	Yes, some attempt. Some questionnaire items taken from existing scales and items (p.510) but limited detail of which items and how many, and no reported tests of reliability.
Have sufficient attempts been made to establish the validity or trustworthiness of data collection tools and methods?	Yes, some attempt: Factor analysis carried out to determine internal validity and adjustment made according to this. However, the example given of the TSE item raises questions about how specific the TSE measure is to both the practice measure and how reflective it is of teacher self-efficacy. Although other valid research on TSE is cited, there is a lack of theoretical exploration of the concept in the article.
Have sufficient attempts been made to establish the repeatability or reliability of data analysis?	Yes, some. Steps of analysis were described (but not the order of variables entered).
Have sufficient attempts been made to establish the validity or trustworthiness of data analysis?	Yes, some attempt. Statistics computed to examine the goodness of fit of the path analysis model.
To what extent are the research design and methods employed able to rule out any other sources of error/bias which would lead to alternative explanations for the findings of the study?	A little. Not able to rule out opposite causation of teaching practice causing efficacy as analysis is correlational, but use of Structural Equation Modelling allows slightly more confidence in proposed causal links.
How generalisable are the study results?	The large sample and study design looking at naturally occurring practice which may indicate a reasonable level of generalisability. Teachers covered the whole of the primary age range in addition.
In light of the above, do the reviewers differ from the authors over the findings or conclusions of the study?	Yes, as there is some evidence of overgeneralisation. For example, one conclusion (p.517) is that TSE appears to be most important motivational factor for explaining teacher learning and teacher practices (but only 4 practices looked at and just 4 motivational factors).
Have sufficient attempts been made to justify the conclusions drawn from the findings, so that the conclusions are trustworthy?	Medium trustworthiness, e.g. balance of overgeneralisation and acknowledging the limitations of cross sectional design for making causal claims.
Weight of evidence A:	Medium.
Weight of evidence B	High.
Weight of evidence C	Medium
Weight of evidence D	Medium

Appendix B: Participant information



Participant Information Sheet

Project Title: What is the relationship between teacher self-efficacy, thinking-skills pedagogies and the experiences of pupils and teachers in the classroom?

Name of Investigator: Miss Fiona McBryde

Name of Supervisors: Dr Simon Gibbs and Mrs Wilma Barrow

As we have discussed, this project is primarily looking at the experiences of teachers in Philosophy for Children (P4C) lessons. In particular, the project aims to explore:

- How social interactions in P4C lessons might influence teachers' experiences
- Attitudes relating to self-concept in P4C lessons

The anticipated tasks that you will be involved in in the project are:

- Delivering a lesson through your usual P4C practice, which Fiona McBryde will video record for analysis
- Delivering a lesson through your usual P4C practice, which Fiona McBryde will video record for joint viewing and discussion on the video
- An individual interview with Fiona McBryde to discuss findings emerging from the research and seek your views on these

As the research plan is flexible, in order to respond to initial research findings, there may be changes to this research plan. The research plan may later include:

- A workshop on P4C in xxxxxx Primary School with some of your teaching colleagues, which you will be invited to attend

In addition, you have kindly agreed to:

- Collect returned consent forms for collation by Fiona McBryde.

Fiona McBryde will:

- Schedule times for the above tasks in negotiation with you
- Collate and manage consent forms
- Keep you informed of any changes to the above plan

A report on this research will be completed and it is anticipated that a report will be made available to xxxxxx Primary School. All information and quotations in this report will be anonymised and every attempt made to ensure that you are not individually identifiable as a participant. Due to the small numbers involved, you will have the opportunity to read any report that is made available to xxxxxx Primary School, prior to distribution to alert me to any information contained therein which you believe makes you identifiable.

Should you wish to contact me with any questions, please contact me at f.mcbryde@newcastle.ac.uk or by phone on 07xxxxxxxx.

Should you wish to contact my supervisor in relation to this research, please contact Dr Simon Gibbs at s.j.gibbs@ncl.ac.uk or 0191 xxx xxxx.

Both Fiona McBryde and Dr Simon Gibbs can be contacted by mail at the address below:

School of Education, Communication and Language Sciences
King George VI Building
Queen Victoria Road
Newcastle upon Tyne
NE1 7RU

Appendix C: Participant consent form



Consent form for persons participating in research projects

Project Title: What is the relationship between teacher self-efficacy, thinking-skills pedagogies and the experiences of pupils and teachers in the classroom?

Name of Investigator: Miss Fiona McBryde

Name of Supervisors: Dr Simon Gibbs and Mrs Wilma Barrow

1. I consent to participate in the above project, the particulars of which - including details of tests or procedures - have been explained to me.
2. I authorise the investigator to use with me the procedures referred to under (1) above.
3. I understand that video recordings will be viewed by the principal researcher and may be shared with their supervisor in formal supervision sessions. The video data will then be securely stored under password protection and destroyed in 5 years.
4. I acknowledge that:
 - (a) The possible effects of the procedures have been explained to me to my satisfaction;
 - (b) I have been informed that I am free to withdraw from the project at any time and to withdraw any unprocessed data previously supplied;
 - (c) I have been informed that the confidentiality of the information I provide will be safeguarded, subject to any legal requirements.
 - (d) I have been informed that I may be quoted anonymously in any publications, reports or research articles that emerge from this project.

Signature: _____ Date: _____
(Participant)

Should you wish to contact me with any questions, please contact me at f.mcbryde@newcastle.ac.uk or by phone on 07xxxxxxx.

Should you wish to contact my supervisor in relation to this research, please contact Dr Simon Gibbs at s.j.gibbs@ncl.ac.uk or 0191 xxx xxxx.

Both Fiona McBryde and Dr Simon Gibbs can be contacted by mail at the address below:

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Appendix D: Semi-structured interview schedule for stage 3 interviews

Introduction

1. Offer to look at brief video clip to re-orient to previous lessons.
2. Remind participant of right to withdraw
3. Purpose of today's interview
 - Partly to feedback what I've been thinking about the discussions and lessons so far across whole group
 - Chance to ask some new questions
 - Chance to get your views on some of my emerging ideas

Just to start briefly. **“Are you still managing to use P4C in lessons? What does this currently look like?”**

Question 1

Introduction: I've been interested in exploring what you've all been doing in P4C lessons and what you have all said about what you are doing.

The main tasks that I saw people doing were:

- Managing classroom talk – e.g. establishing routines
- Giving discussion overall structure
- Creating opportunities in talk (e.g. checking understanding, asking follow up questions)
- Constructing a role as a facilitator and learner
- Supporting thinking (extending, asking, pointing out contradiction)
- Therapeutic role (empathic feedback, responding to pupils)

Some of the things you all told me about what you were doing in P4C were:

- Aims – developing thinking skills, collaboration, cognitive, metacognitive, independence, verbal
- Own experiences: planning, constructing roles (Teacher, Facilitator and Learner), build pupil relationships, executive tasks, managing professional autonomy, engage in dialogue, develop process, modelling/extending thinking, observation and reflection to adjust practice
- Challenges – balancing roles, inclusion of all pupils and working with their skills

“In what ways do these seem familiar or surprising to you?”

“I'm interested in your views on to what extent you feel that successfully carrying out a P4C lesson is completing all these (and other) subtasks successfully. Or is successfully completing a P4C lesson more than the sum of its parts?”

- Prompt – is there a separate thing that is “doing P4C”?

Question 2.

Introduction: It seems that you all have a belief about when you feel you will be successful in carrying out tasks in P4C and completing the P4C lesson. I'm interested in talking more about that today. I will call these "success beliefs".

“What can you tell me about your success beliefs in P4C lessons? Can you tell me any more about...?”

Prompts

- How do you feel about your success beliefs in P4C lessons?
- What beliefs about successfully carrying out P4C lessons are you aware of?/what success beliefs are you aware of in relation to P4C?
- When do you find that you are most aware of these?
- How much would you agree with the statement “I can carry out the teaching I need to in a P4C lesson”? On a scale of 1 – 10?
- What other statement might describe/better describe your success beliefs in relation to P4C?
- What do you feel it is important to have a success belief when doing P4C lessons? Why?/can you tell me more about that?

Probes

- Tell me more about that
- Could you give me an example of that?
- Could you say more about that?
- Are there other times that you've felt similar or different to that?
- Is that/has that always been the case?

Question 3

“From your own experiences, what do you think helps you in maintaining the success belief(s) you have about doing P4C lessons?”

“What is important for you in maintaining your belief that you can carry out (the tasks in) your P4C lesson?”

Prompts

You may want to think about...

- People/events
 - in school
 - in your class
- Other success beliefs that you hold (as a teacher)
- Student success/performance
- Beliefs about your students
- Your experiences

“You rated the statement “I can carry out the teaching I need to in a P4C lesson” as x : what is it that lets you know it is not $x-1$?”

“What do you think would let you know it was a $x+1$?”

Prompts

- Tell me about what challenges or changes your success beliefs.
- Tell me about whether your success beliefs influence what you do in the P4C lesson.

Question 4

Introduction: "I'm interested in what happens in the classroom that helps you maintain your success beliefs about carrying out P4C lessons"

Tell me about how your experiences in P4C lessons influence your success beliefs about carrying out P4C lessons.

Prompts

- Do they apply to your beliefs about all tasks in P4C lessons in the same way? Is it in any way differentiated, depending on tasks?
- Can you think of any examples of this?
- Can you think of examples of this in any other context?

You may want to think about...

- People/events
 - in school
 - in your class
- Other success beliefs that you hold (as a teacher)
- Student success/performance
- Beliefs about your students
- Your experiences

Question 5

Introduction: “In addition, I’m interested in how you’ve all interacted with the students in P4C lessons and how this might have contributed to your success beliefs.”

“Tell me about how you see yourself interacting with students in P4C lessons?”

Is there anything that your interactions with students let you know about your success beliefs?”

“Is there anything you learn about your success beliefs through your interactions with students?”

Prompts

You may wish to consider:

- Thoughts about the students?
- What you notice about the students
- What you think during P4C lessons
- What you think after P4C lessons
- Student’s verbal, nonverbal feedback about
 - o You and the lesson
 - o Their own experiences
 - o Discussion content

Question 6

Introduction: I would just like to return to this clip in the video, which we looked at last time.

“Having looked at the video

- o **What are your immediate thoughts on seeing it again?**
- o **Did you see anything in the video that reflects anything of what we’ve talked about today?**
- o **Did you see anything in the video that links to your success beliefs in P4C lessons?”**

Prompts

You might want to think about:

- Your practices
- Your beliefs as a teacher
- Your success beliefs as a teacher

Appendix E: Sample of interview transcript and open coding with NVivo

File Home Create External Data Analyze Query Explore Layout View

F: was that right that you were thinking...it sounds like you are starting to say that you were thinking about the topic

P1: Yeah I was thinking, what would it, what would be good, what would, and I started to think about it

F: and did that sort of make your decision for you?

P1: yeah coz I felt that I had to think about well what would it be like, then I thought actually that's a very good one because it got me thinking, it's a child's idea and I thought it's going to get everyone involved

F: ok, so that whole little bit there where you go from let's do something we've done before to picking up on, not the resistance to that but you know the views on that (P1: yes) and then sort of throwing it open and getting some feedback on where to go with that, so through all that did you have any sort of doubts that that would work? Do you think there were any risks, challenges...

P1: after I'd chosen the topic?

F: just through that whole general segment?

P1: yeah, I had a risk, I had a risk that the children wouldn't think as deeply as she did and that we would end up with enquiries that were very similar to the three that I had. That's what my main worry was in that 50 seconds, we need something completely different here that we can get our teeth in to.

F: you said a main worry, so what were you feeling through that clip do you think?

P1: emm...

Annotations

Item	Content
2	We can't know if there are other criteria applied here: he's said before that the topic needs to be a vehicle for him for the lesson, has he applied some other criteria here, perhaps is a state of unconscious competence? The reasoning given here could be a litmus test to know if this is a good choice: a gut feeling, or a product of his experience of working in this way and using this lesson format.

3 Items Nodes: 35 References: 209 Editable Line: 175 Column: 2 100%