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## **"Are they becoming more reflective and/or efficacious?" A conceptual model mapping how teachers' self-efficacy beliefs might grow**

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### ***Abstract***

Conceptual models can fulfil important educative roles, particularly in fields where there are few such models and where constructs are confused, as in research into teachers' self-efficacy beliefs. In this area, one model developed in the late twentieth century subsequently became dominant, but seems flawed. This article addresses criticisms of it and then presents an alternative, this centred on a reflective learning cycle. The new model emerged from a qualitative longitudinal multi-case study of English language teachers developing practical knowledge and self-efficacy beliefs while on an in-service teacher education programme in Oman. Its relevance for other contexts is considered.

***Key words:*** teachers' self-efficacy beliefs; practical knowledge; reflective learning cycles; conceptual models; in-service language teacher education.

### ***Introduction***

In education and the social sciences more generally, we are all familiar with conceptual models. Using "a series of shapes and arrows to succinctly represent a set of presumed causal relationships" (Margoluis, Stem, Salafsky and Brown, 2009, p. 139), the conceptual model "is invented to provide an appropriate representation of the target system, appropriate in the sense of being accurate, consistent and complete" (Norman, 2014, p. 7), whatever that target system is, e.g. motivation for second language learning, as in Dörnyei and Ushioda (2011). The conceptual model functions as a visual tool to support the learning/teaching of that target system and therefore needs to be learnable, functional and useable. If users of the model are unable to relate it to their beliefs, experiences and observations, and its predictive power seems weak, then the conceptual model is likely to be ignored, revised or discarded (Norman, 2014). A robust and well-developed conceptual model, then, can fulfil an important educative role. Interestingly, though, while certain fields, e.g. motivation for second language learning (Dörnyei and Ushioda, 2011), have attracted numerous conceptual models over the years, others, e.g. teachers' self-efficacy beliefs (or 'teacher efficacy', an alternative term that carries slightly different associations), have attracted comparatively few, and

relatively little ensuing discussion. If there is limited discussion of conceptual models in a particular field, this can be problematic if much of the research is conceptually confused, as much of that into teachers' self-efficacy beliefs is (Wheatley, 2005; Klassen, Tze, Betts and Gordon, 2011; Wyatt, 2014a). This article focuses on this particular problem, examining a conceptual model that was designed to illustrate 'teacher efficacy' growth and has dominated the field for more than a decade, but nevertheless appears flawed and (of late) little-used. An alternative model is presented, this aiming to achieve a clearer representation of the target system, with sufficient explanatory power to inform future research.

### *The dominant model described*

When it appeared, Tschannen-Moran, Woolfolk Hoy and Hoy's (1998, p. 228) conceptual "multidimensional model of teacher efficacy" seemed groundbreaking. In the previous year, Albert Bandura, whose experimental research "with subjects whose lives were adversely affected by chronic snake phobias" (Bandura, Adams and Beyer, 1977, p. 127) that had led to theory-building insights into the importance of self-efficacy beliefs in shaping behaviour (Bandura, 1977), had criticized the way this theory had subsequently been widely misapplied in the 80s and 90s to the study of *teachers'* self-efficacy beliefs (Bandura, 1997). Since his theory so influenced Tschannen-Moran et al.'s (1998) conceptual model, before focusing on their model I say more about Bandura's research from the 1970s.

Bandura's fascinating experiments had required fearful volunteers to approach a glass cage containing a boa constrictor, touch and hold the snake, free it within the room and catch it, and then let it crawl on their laps while keeping their hands at their sides (Bandura et al., 1977). Of interest to the psychologist researchers were the participants' self-efficacy beliefs (their beliefs about their abilities to successfully execute certain behaviour, e.g. pick up the snake in a certain way, this therefore an agent-means belief in Skinner's [1996] taxonomy) and their outcome expectations (beliefs with regard to how certain behaviour would lead to outcomes, e.g. if the snake was picked up in a certain way, a belief it would react in a certain manner, this therefore a means-ends belief [Skinner, 1996]). Bandura (1977) differentiates clearly between self-efficacy beliefs and outcome expectations, pointing out that someone with a chronic phobia might combine a positive outcome expectation (e.g. believing that picking up a snake in a certain way is not at all dangerous) with a low personal self-efficacy belief (e.g. doubting the ability to overcome fear and actually pick up the snake in that way in the first place). The result of such a combination of beliefs, in this case then, is that the subject might approach the task with extreme trepidation or (quite understandably perhaps) avoid carrying it out, their self-efficacy beliefs, a construct central to Bandura's (1986) Social Cognitive Theory, shaping their behaviour. Bandura's (1977) research, then, highlights the power of 'can do' self-efficacy beliefs in

the face of challenging tasks, such as trying to overcome a phobia for snakes while having a boa-constrictor crawling on your lap.

Self-efficacy beliefs, which might vary in strength within individuals and fluctuate in relation to task difficulty and the extent to which generalization to other tasks can occur, derive from four different sources, as Bandura (1977) explains. These are performance accomplishments that are elsewhere described in his work as mastery experiences (e.g. successful experiences of picking up the snake), vicarious experiences (e.g. seeing a more skilled other such as a coach handling it), verbal persuasion (e.g. being encouraged/ convinced of one's capabilities to engage in the task) and emotional/ affective/ physiological arousal triggered by the senses. These sources of self-efficacy information are then subject to cognitive processing (Bandura, 1977), for "what is attended to, what is considered important or credible, and what is remembered influence the impact of experience on efficacy beliefs" explain Tschannen-Moran et al. (1998, p. 230), who draw upon the concept, after Bandura (1977), in their visual model (Figure 1, below); cognitive processing filters sources of self-efficacy information, supporting the regulating of "choice behaviour and effort expenditure" (Bandura, 1977, p. 212).

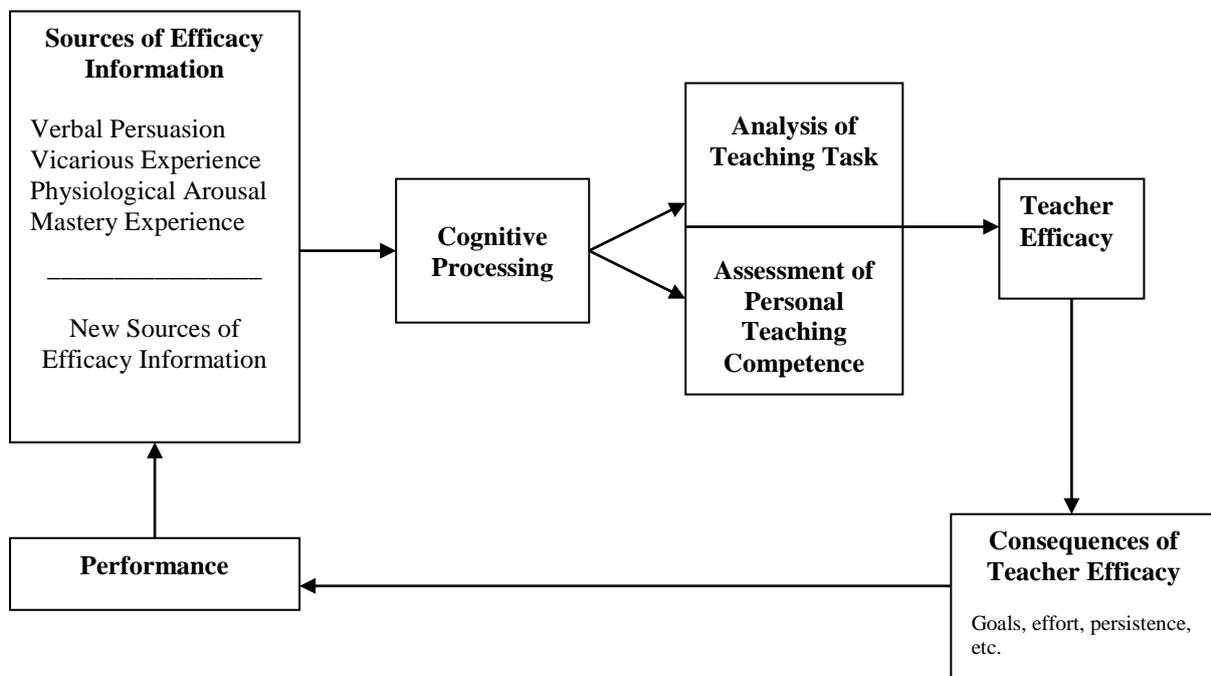


Figure 1: Multidimensional model of teacher efficacy

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At this point in discussing the model (Figure 1), we move from handling snakes to teaching, a journey also made in Bandura's (1977, 1997) research, as the study of self-efficacy beliefs was extended to new disciplines. In Tschannen-Moran et al.'s (1998, p. 228) model, the cognitive processing of sources of self-efficacy information influences the 'analysis of the teaching task' in relation to the 'self-assessment of personal teaching competence', a diagrammatic representation which seems to recognise the complex interplay between these different elements. Self-efficacy beliefs for the task at hand are impacted by micro-contextual factors such as "the students' abilities and motivation, appropriate instructional strategies, managerial issues, the availability and quality of instructional materials, access to technology and the physical conditions of the teaching space" (Tschannen-Moran et al., 1998, p. 231). Broader contextual factors including "the leadership of the principal, the climate of the school and the supportiveness of other teachers" (p. 231) also impact teachers' self-efficacy beliefs.

Interestingly, Tschannen-Moran et al. (1998) conceptualize the teacher's analysis of the teaching task within its context in terms of outcome expectations or means-ends beliefs (Skinner, 1996). These interact (in their model) with 'agent-means' self-efficacy beliefs relating to perceptions of *current* competence in the particular teaching task to form *future-oriented* 'agent-ends' (Skinner, 1996) 'teacher efficacy' beliefs, as so labelled (Figure 1). In this conceptualization, then, these authors differ from Bandura (1977), who also highlights the importance of contextual factors "including the social, situational and temporal circumstances under which events occur" (p. 200). However, Bandura discusses these contextual factors in relation to the cognitive processing that shapes self-efficacy beliefs (which, as noted above, he distinguishes from outcome expectations). In Bandura's analysis, therefore, a consideration of contextual factors is more closely linked to self-efficacy judgements.

Another puzzle is that Tschannen-Moran et al.'s (1998) definition of 'teacher efficacy', "a belief in [the] capability to organize and execute courses of action required to successfully accomplish a specific teaching task in a particular context" (p. 233), reads like an 'agent-means' belief (Skinner, 1996). This is because there is no reference to outcomes, to the learning that might result from the accomplishment of the task. Nevertheless, it appears that Tschannen-Moran et al. (1998) intend their definition to combine agent-means and means-ends perspectives.

A further curiosity lies in the way teachers' self-efficacy beliefs are conceived to grow. Tschannen-Moran et al. (1998, p. 234) describe this growth in terms of its "powerful... cyclical nature. Greater efficacy", they maintain, "leads to greater effort and persistence, which leads to better performance, which in turn leads to greater efficacy". The reverse scenario they depict does not bear

contemplating: “Lower efficacy leads to less effort and giving up easily, which leads to poorer teaching outcomes, which then produce decreased efficacy” (p. 234). Having described this model (Figure 1), I now evaluate it in more detail.

### *The dominant model evaluated*

In developing their model (Figure 1), Tschannen-Moran et al. (1998) were clearly influenced by Bandura’s (1977, 1997) work, e.g. in highlighting the role of the various sources of self-efficacy information he identified, together with the role of cognitive processing in filtering this information. This is noteworthy since, for many years, these aspects of his theory, like his more recently developed ‘teacher self-efficacy scale’ (Woolfolk Hoy and Burke Spero, 2005), appeared of little interest to many of the researchers applying their understanding of self-efficacy beliefs to the study of teachers. In building on Bandura’s (1977, 1997) work, Tschannen-Moran et al. (1998) seem to have been reclaiming the centrality of some of his ideas for the field of research into teachers’ self-efficacy beliefs. For, notwithstanding Bandura’s (1977) early warning that self-efficacy beliefs were conceptually different from ideas advanced by Rotter (1966) that concerned the locus of control, two decades of research labelling itself ‘teacher efficacy’ then proceeded, as reviews of the literature (e.g. Wheatley, 2005; Klassen et al., 2011; Wyatt, 2014a) report, to follow Rotter’s ideas in significant ways, using instruments such as one developed by Gibson and Dembo (1984). This measured ‘personal teaching efficacy’ (PTE) and ‘general teaching efficacy’ (GTE), the latter measuring not outcome expectations, though, but locus of control (which can be internal or external: if external, the belief is that outcomes are not determined by our actions) (Tschannen-Moran et al., 1998; Henson, Kogan and Vaacha-Haase, 2000). Poor construct validity thus blighted research into teachers’ self-efficacy beliefs during this period (Henson, 2002), while concepts central to Bandura’s (1986) Social Cognitive Theory were ignored. Thus, ‘sources of efficacy information’ had been “largely unexamined” by researchers into teachers’ self-efficacy beliefs prior to 1998 (Henson, 2002, p. 141). Given, however, that these sources of self-efficacy information have received much more attention since (e.g. by Labone, 2004; Aydin, Demirdöğen, and Tarkin, 2012; Chong and Kong, 2012), this suggests that, in this way at least, Tschannen-Moran et al.’s (1998) conceptual model has had a beneficial impact in pinpointing their importance.

There has been more criticism, though, of the next stage in Tschannen-Moran et al.’s (1998) conceptual model, for in this (Figure 1) the ‘sources of efficacy information’ are subject to ‘cognitive processing’. In the view of Fives and Alexander (2004), there is something missing:

Those sources of efficacy information, those experiences, do not lead directly to cognitive processing, but rather contribute to the development of knowledge and beliefs within the teachers’ cognitive system. Those knowledge and beliefs then influence how teachers

analyse the task and evaluate their own competence, resulting in efficacy beliefs. Thus, we contend that experiences alone do not affect subsequent cognitive processing. Rather, these experiences allow teachers to construct knowledge and belief structures that subsequently influence cognitive processing (p. 4).

Unlike Tschannen-Moran et al. (1998), who declare that their view of teacher efficacy is “through a psychological lens” (p. 203), Fives and Alexander (2004) seem to have a broader perspective, influenced by the ever-expanding field of research into teacher cognition, which has developed in line with a radical reconceptualizing of the teacher’s role in recent decades (e.g. Borg, 2006) and a greater understanding of the forms of knowledge and beliefs that teachers draw upon (e.g. Fives and Buehl, 2008). Perhaps, to gain a deeper understanding of how teachers’ self-efficacy beliefs develop, a comparatively narrow ‘psychological lens’ is inadequate. Wheatley (2005) calls for a ‘merging of fields’ with scholars expert in “learning, motivation and performance” joining forces with those whose backgrounds are in “teaching, teacher learning and teacher education” (p. 760). One outcome of such endeavour could be a greater focus on the relationship between teachers’ self-efficacy beliefs and their knowledge and belief systems. However, very little research to date has explored such correspondences, as discussed in several reviews of the literature (Fives, 2003a; Wheatley, 2005; Wyatt, 2014a).

Based on original PhD research, Fives (2003b) developed her own conceptual model of ‘teacher efficacy’ (Figure 2, below). This is largely similar to Tschannen-Moran et al.’s (1998) model (Figure 1), chiefly different for inserting ‘pedagogical knowledge’ and ‘pedagogical beliefs’ between ‘sources of information’ and ‘cognitive processing’, for the reasons provided by Fives and Alexander (2004), above.

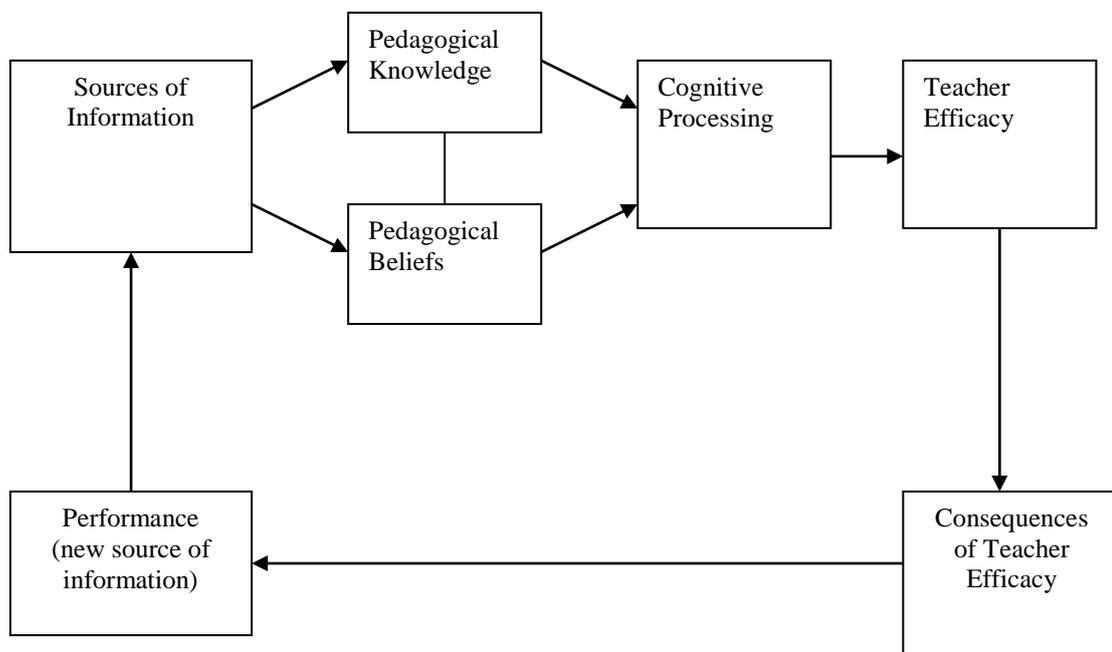


Figure 2: *Extended Model of Teacher Efficacy*

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Fives (2003b, p. 95) also omits Tschannen-Moran et al.'s (1998) stage: 'analysis of the teaching task' in relation to 'self-assessment of personal teaching competence' in her model, with 'cognitive processing' (under which she subsumes this stage) leading directly to 'teacher efficacy'. Indeed, her view is that "the ability to analyze the teaching task is directly affected by the content and expanse of teachers' pedagogical knowledge and beliefs [and that] in any given teaching context, there exist multiple teaching tasks" which different teachers will perceive to differing extents in different ways (Fives 2003b, p. 96-97); this last insight has also informed recent qualitative research (e.g. Wyatt, 2010a, 2013a, 2015). Fives prefers not to focus closely on 'agent-means' and 'means-ends' beliefs (Skinner, 1996), since she considers other aspects of cognitive processing, such as "selection of strategies, information seeking" (Fives, 2003b, p. 98), also important.

Tschannen-Moran et al. (1998) do refer to 'means-ends' task analysis, though not very convincingly (Wheatley, 2005). Indeed, they relate 'the analysis of the teaching task within its context' both to 'means-ends' and also to GTE beliefs (which concern the locus of control [Skinner, 1996]). This could be slightly confusing. Means-ends beliefs are centred on the method or the intervention. To paraphrase Wheatley (2005, p. 750), they can be elicited through the question: 'does the teacher believe the methods really work (in this context, with these learners)?' (If one were to ask: 'does the teacher believe in his/her personal ability to use the relevant methods skilfully?', this would elicit agent-means beliefs.) Contrast these questions with a Rand study/Rotter-related GTE item from Hoy and Woolfolk (1990): 'When it comes right down to it, a teacher can't really do much because most of a student's motivation and performance depends on his or her home environment'. This is conceptually very different from a means-ends belief, focusing on the power of the (negative) context, rather than on the efficacy of the method.

Tschannen-Moran et al. (1998) do appear to recognise this (after making a perhaps rather erroneous comparison), acknowledging that GTE beliefs reflect "only a partial analysis of the teaching task, focusing on the external constraints that might impede teaching" (p. 232). However, given Bandura's (1977, 1997) complaints about the misapplication of Rotter's (1966) ideas to the study of self-efficacy beliefs and outcome expectations, the way in which Tschannen-Moran et al. (1998) compare GTE with means-ends beliefs could unfortunately still serve to 'muddy the waters' somewhat, as Henson (2002) describes the work of researchers trying to fuse together the theories of Bandura (1977) and Rotter (1966).

There are other issues with the 1998 model. As Wheatley (2002) points out, in all previous 'teacher efficacy' studies, therefore including the work of Tschannen-Moran and Woolfolk Hoy (2001) and Tschannen-Moran et al. (1998), positive 'teacher efficacy' beliefs are regarded as "the appropriate goal" (p. 5). However, an unfortunate outcome of ever-increasing, 'greater- to greater- to greater', spiralling cycles of efficacy growth is over-confidence, and over-confidence, as Wheatley (2002) reminds us, can be a conservative force; it can lead to complacency, the maintenance of a failing status quo, the blocking of learning and educational reform, unwillingness to accept change. In this light, 'teacher efficacy doubts', with regard to very specific aspects of a teacher's work (but not the work as a global whole), can be highly beneficial for various reasons, e.g. for fostering the disequilibrium that can stimulate change, encouraging reflection, supporting motivation to learn, increasing openness to diversity and stimulating productive collaboration (Wheatley, 2002). This insight has 'puzzled' many 'teacher efficacy' researchers, e.g. Woolfolk Hoy and Davis (2006), and Tschannen-Moran and Johnson (2011), partly perhaps because discussion of the difference between global self-efficacy (GSE) and task-specific teachers' self-efficacy (TSE) beliefs has been sparse, leaving the distinction little understood. Indeed, only a few researchers, e.g. Henson, Bennett, Sienty and Chambers (2000), Wheatley (2002, 2005), Wyatt (2014a), have addressed the issue. Besides failing to consider how teachers develop through self-doubt and reflection, Tschannen-Moran et al.'s (1998) conceptual model, then, does not seem informed by awareness of how GSE and TSE beliefs differ.

Nevertheless, despite these flaws, Tschannen-Moran et al.'s (1998) conceptual model has been praised for being the first comprehensive model in its field (Labone, 2004), even though specific references to it are not frequent among researchers who cite Tschannen-Moran et al.'s (1998) work in general. When it is cited, the model is rarely questioned. Indeed, most researchers who refer specifically to it (e.g. Liaw 2009; Moafian and Ghanizedah 2009; Malinen, Savolainen, and Xu 2012; Rollins, 2008; Wilson and Tan, 2004) unfortunately seem to do so without being at all critical. The model has been adapted in PhD dissertations, e.g. by Fives (2003b) and Tangen (2007) (who elaborates on the contextual factors considered during cognitive processing [after Bandura, 1977]). It has also been adapted in articles occasionally, e.g. by Mansfield and Woods-McConney (2012), who simply add the word 'science' to the various elements. However, until now no strikingly different alternative models that address all the various concerns above have been offered. Such an alternative conceptual model that illustrates how TSE beliefs might grow is the focus here.

### *An alternative model contextualized*

Before presenting this alternative model, I first contextualize it, referring to the original research from which it emerged, in which it functioned as an

attempt to represent the 'target system' (Norman, 2014) in that context. The context was this: While working on an in-service language teacher education programme in Oman (see Atkins, Lamb and Wedell [2009] for details of the programme), I conducted a 'multi-case study' (Stake, 2006), as an 'insider', of five Omani teachers of English, following their progress longitudinally over three years through 'interpretative' qualitative research methods exploring their lived experience (Cohen, Manion and Morrison, 2007). Non-participant classroom observations, semi-structured interviews and analyses of their reflective writing, as discussed at length in Wyatt (2008), facilitated various forms of 'triangulation' (Stake, 1995), e.g. with reported cognitions compared with observed and reported actions, from different perspectives and over time. I was interested in their developing TSE beliefs, which I examined in relation to growth in their 'practical knowledge' (PK) (Elbaz, 1981), constructs I explored together for the following reasons.

Firstly, I hypothesized that the teacher education programme, which contained a reflective element, would support growth in the teachers' PK, which is "the knowledge that is directly related to action ... that is readily accessible and applicable to coping with real-life situations" (Calderhead, 1988, p. 54). It can be seen as central to teachers' personal practical knowledge (PPK) (Clandinin and Connolly, 1987). Often viewed as a more holistic construct (e.g. by Borg, 2006), PPK is "a moral, affective and aesthetic way of knowing life's educational situations ... permeated with a concern for community, for how teachers' knowledge and action affect others" (Golombek, 1998, p. 449).

I also hypothesized that growing PK would influence developing TSE beliefs. I have defined these as teachers' "beliefs in their abilities to support learning in various task and context-specific cognitive, metacognitive, affective and social ways" (Wyatt, 2010a, p. 603). This definition, therefore, includes reference to both learning outcomes and teaching methods (i.e. allowing for the analysis of agent-means, means-ends and agent-ends beliefs), while also attempting to do justice to the complexities of teaching.

It is widely recognized that beliefs and knowledge are deeply entwined. Discussing the relationship between them, Pajares (1992, p. 325) suggests that: "the potent affective, evaluative and episodic nature of beliefs makes them a filter through which new phenomena are interpreted". As to the role of TSE beliefs, Bandura (1986, p. 359) conceptualises these as fostering action as well as serving as "a filtering mechanism for self-referent information in the self-maintaining process". He contends, as Fives (2003a) reminds us, that self-efficacy is the central mediator of effort, a point taken up by Raudenbush, Rowan and Cheong (1992), who describe TSE beliefs as mediating between knowledge and action, influencing the degree of effort and persistence brought to bear as knowledge is transformed into action.

In my multi-case study research (Wyatt, 2008), the teaching tasks (related to the TSE beliefs focused on) were ones that emerged from the individual cases. One of my hypotheses, from my perspective as an 'insider' researcher focused on supporting the teachers' development, was that teachers would benefit more, in terms of PK and TSE beliefs growth, when focused on 'self-directed goals' (Henson, 2001). In Henson's study, an investigation into the effects of participation in teacher research on growth in 'teacher efficacy', positive changes were identified in the experienced teachers who took part. Supported by mentoring, the availability of research literature and an autonomy-supportive school context, the teachers reflected on problems they faced and then engaged in tackling them through action research (Henson, 2001). Action research was thus an empowering force in this 'intervention' study; intervention studies are very rare in the 'teacher efficacy' literature (Wyatt, 2014a), partly because researchers, when viewing these beliefs purely in GSE terms, tend to misconstrue them as 'fixed' once set and very difficult to change, as Wheatley (2005) reminds us.

As to the 'self-directed goals' that would be the focus of my research (Wyatt, 2008), these would relate to the participating teachers' emergent action research dissertation topics. I felt that action research, with its commitment to improving practice through experimentation and reflection, might support the types of personal growth (in PK and TSE beliefs) that I was investigating. The specific TSE beliefs tasks that emerged in the individual cases were as follows:

- Using communicative tasks to develop speaking skills
- Enhancing learners' motivation through creative use of materials
- Helping learners overcome difficulties in reading
- Mentoring teachers to become more reflective practitioners
- Supporting low achievers through groupwork activities

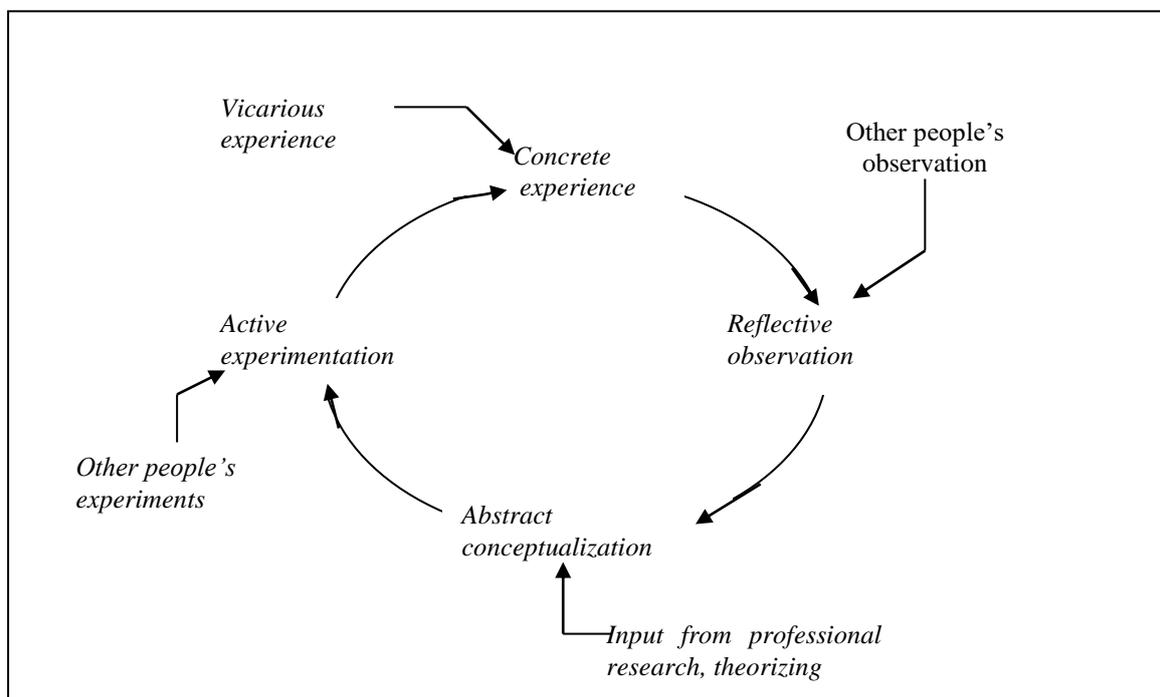
All the above tasks represented motivating challenges for the teachers (and senior teachers) concerned, challenges which they were deeply committed to addressing. As to the ways in which and extents to which they were able to do so, I have discussed this elsewhere (Wyatt, 2009a, 2009b, 2010a, 2010b, 2011a, 2011b, 2012, 2013a, 2013b, 2015; Wyatt and Arnold, 2012; Wyatt and Borg, 2011); some of these publications focus on individual stories of PK and/or TSE beliefs growth in relation to particular tasks, while others are comparison studies highlighting common themes or patterns of development. My interest in these teachers for this current paper is purely with regard to illustrating the development of an alternative conceptual model of TSE beliefs growth (Figure 4, below); this model originally appeared in my PhD thesis (Wyatt, 2008), but has not otherwise been published.

Before presenting this alternative model, a further point I would make about it is this: When I started to think about the teachers' potential learning in relation to their chosen tasks, and thus their developing PK and TSE beliefs,

the role of their reflections (as noted above, absent from Tschannen-Moran et al.'s [1998] conceptual model) seemed crucial. According to the teacher educator Ur (1996, p. 319): "reflection is the first and most important basis for professional progress", while the educational psychologist Pajares (2002, para. 13) maintains: "through reflection, people make sense of their experiences, explore their own cognitions and self-beliefs, engage in self-evaluation, [and begin the processes which] alter their thinking and behaviour accordingly". Bandura (1997, p. 79), meanwhile, explains that only through reflective thought can information relevant for judging personal capabilities, "whether conveyed enactively, vicariously, persuasively or physiologically" be utilized.

Reflecting deeply is not a straightforward matter, though, requiring of the practitioner qualities of open-mindedness, wholeheartedness and a sense of responsibility (Dewey, 1933), together with various skills. These include noticing, listening, analysing, problem-solving, hypothesizing, articulating arguments based on evidence and evaluating outcomes against objectives (Malderez & Bodóczyk, 1999; Galvez-Martin, Bowman & Morrison, 1998).

These reflective qualities and skills are drawn upon in the planning of teaching tasks (active experimentation in Figure 3, below), concrete experience of using them in the classroom, reflective observation of their use, and then a stage which Ur (1996, p. 6) labels 'abstract conceptualization', when principles or concepts that can be used intellectually to account for how the tasks seemed to work are drawn upon. In her model, this stage leads cyclically into further 'active experimentation' in the planning of new but related tasks. This reflective cycle is additionally enriched by external sources of input, including vicarious and interactive experiences, e.g. in the form of shared experiences, feedback from others and input from research.



*Figure 3: Enriched reflection.*

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The context in which my research took place was one characterized by 'enriched reflection' (Ur, 1996). Indeed, the encouragement of reflection was central to the teachers' 'constructivist' (Dangel and Guyton, 2004) three-year in-service language teacher education programme, as I have explained at length elsewhere (e.g. Wyatt, 2010b). Strategies included mentoring to encourage reflection at deeper levels (Van Manen, 1991), with this mentoring facilitated by the quality time in schools that Malderez and Bodóczy (1999) point out is needed for this. Secondly, teachers attended weekly professional development sessions at a regional training centre, these integrating elements that Roberts (1998, p. 274) recommends for such off-site courses: "experiential learning, theoretical input, reading, discussion, reflection, formal writing and experimentation". Thirdly, the teachers were involved in curriculum development, in the sense that practical assignments encouraged them to adapt materials according to the needs of the learners in their school contexts, plan innovations, monitor and evaluate them, and then reflect on the whole learning process (Wyatt, 2014b). Consequently, when I started to develop my conceptual model of how TSE beliefs might grow (Figure 4, below), it seemed natural to make a reflective cycle integral to it.

*The alternative model described*

Having contextualized this conceptual model, I now describe it, drawing on both findings from my original research and the theorizing of other researchers to explain features of it, particularly those not already addressed. First, at the centre of the model, I have placed 'TSE and other beliefs, moral responsibility orientations, affective and physiological states influencing the quality and quantity of effort put into any given task', which requires some explanation. While TSE beliefs may be the central mediators of effort (Bandura, 1986), they are clearly not alone in influencing this. Indeed, Pajares (1992, p. 315) reminds us: "Conceptualising a belief system involves the understanding that this system is composed of beliefs connected to one another and to other cognitive/affective structures, complex and intricate though these connections may be".

From a similar perspective, various researchers interested in teacher motivation in general have considered TSE beliefs to be one of several important psychological constructs that help explain this. Ames and Ames (1984), for example, consider the following to be crucial: task mastery (beliefs in our ability to help learners accomplish goals; these relate to TSE beliefs), ability in general (a global construct related to self-esteem and 'self-confidence', which I relate to GSE beliefs) and moral responsibility orientations (including a concern for student welfare and a sense of duty).

Meanwhile, in their self-determination theory, Ryan and Deci (2000) identify the fulfilment of needs for autonomy, relatedness and *competence* (which would suggest positive TSE and GSE beliefs) as crucial for intrinsically-motivated behaviour. Researchers who have explored self-theories include Dweck (2000), who has highlighted the importance of 'growth' as opposed to 'fixed' mindsets; with a 'growth' mindset, a sense of competence is more likely to develop, as there is a belief that specific challenges can be overcome. Indeed, evidence of such a phenomenon occurring is presented in a case study of a teacher overcoming low TSE beliefs in teaching English to young learners (Wyatt, 2013a). As Wyatt explains, various factors appeared to help her overcome self-efficacy doubts (Wheatley, 2002) that were partly signalled to her by her physiological and affective state (Bandura, 1977) through the symptoms of fear and sleep loss. The factors that helped included an 'incremental' view of her own learning potential (Dweck, 2000) – she believed she could succeed with effort, a determination to fulfil her moral responsibilities towards the learners (Ames and Ames, 1984) and positive attitudes towards reflection (Dewey, 1933). The result was positive behavioural outcomes, in terms of effort and persistence, which supported the growth of more positive TSE beliefs, leading to the needs of the learners in this particular context being more fully addressed (Wyatt, 2013a).

This explains then why 'TSE and other beliefs, moral responsibility orientations, affective and physiological states influencing the quality and quantity of effort put into any given task' are at the centre of the model (Figure 4, above). They are connected (in this model) to a reflective cycle that includes planning, performing, reflecting and conceptualizing (after Figure 3, above), with linking arrows to each of the four stages. The thinking behind this is as follows: Any task, such as 'enhancing learners' motivation through creative use of materials', involves a series of complex operations, with TSE and other beliefs influencing (and being influenced by) each stage in the planning, teaching, reflecting on and conceptualizing of the task at hand.

For each of these stages, teachers develop PK in a reflective way, as the box on the left below Figure 4 'one aspect of PK growth in planning' illustrates (in relation to one stage). To fulfil the task 'enhancing learners' motivation through creative use of materials', a teacher might need to develop PK in planning which materials to use and how, as well as PK in practically enacting these plans. PK related to reflecting deeply and conceptualizing might also need to be developed. In a series of case studies stemming from my original research, e.g. Wyatt (2009a, 2010b, 2011a), I have demonstrated that such PK growth occurred in participating teachers, with this growth supported by 'constructivist' elements of the programme (Dangel and Guyton, 2004), including mentoring and the encouragement of experimentation.

Besides recognising that PK is integral to every stage in a reflective cycle, my conceptual model acknowledges different dimensions of PK (in the box in the middle below Figure 4), after Elbaz (1981), who describes these dimensions as relating to the self, milieu, subject matter, curriculum and instruction. I have drawn on a similar framework before, e.g. in using the terms ‘learners and learning’, ‘approaches to teaching’, ‘the curriculum’, ‘the self’, ‘the English language’ and ‘the broader context of their work’ when writing about PK growth of teachers on this programme as a whole (Wyatt, 2009b), a framework which, in some ways, represents a collapsing into larger categories of dimensions of PK that emerged in my original study (Wyatt, 2008).

In Table 1 (below), I return to these original categories (Wyatt, 2008), illustrating the types of PK growth that seemed to occur. I do this by drawing on statements suggesting efficaciousness from the semi-structured interviews I conducted with four of the teachers (Mariyam, Rashid, Sarah and Waleed); in my original study, there was also substantial cross-case analysis of the teachers’ PK, for which I do not have room here. While presenting these statements demonstrating efficaciousness, I am not suggesting, however, that they should be taken unproblematically; for example, Rashid’s claim to be able to manage psychological problems as a result of reflecting on input on language acquisition and learning (Table 1, below) was interrogated through different forms of ‘triangulation’ (Stake, 1995), as explained elsewhere (Wyatt, 2008, 2010a). Nor am I suggesting that their statements reflect my own views in any way, e.g. on how to support teachers. Nevertheless, PK growth, though uneven, was observed, and, in reflecting teachers’ self-awareness of this growth, these ‘efficacious’ statements (‘efficacious’ is a term I use broadly to include GSE beliefs), provide a flavour of it.

Table 1: Dimensions of growth in language teachers’ practical knowledge during an in-service teacher education programme, as illustrated by statements indicating their efficaciousness

	<i>Area of practical knowledge growth</i>	<i>Illustrative efficacious statements</i>
1	<i>the learners and learning</i>	“I can manage psychological problems and their weaknesses and their needs also. I can understand what they need and what they lack” ( <i>Rashid</i> ).
2	<i>teaching approaches</i>	“Now I try to deal with them like they are really adults and they are responsible for their learning. So when you give them that chance they really become adults” ( <i>Sarah</i> ).
3	<i>organizing the class</i>	“I’ve got a deep understanding of organizing groups and identifying low achievers and where to put them because I don’t consider them as obstacles or difficult cases in my class. It’s easy now, with the use of groupwork, to help them and to improve their levels... They’re still low achievers but they can improve” ( <i>Rashid</i> ).
4	<i>analysing the</i>	“Now I can look at any area in the syllabus and see how can I

	<i>coursebook</i>	help my learners to learn more and to learn it effectively also, and at the same time I can focus on their problems and try to think about the real solutions to improve their skills and to get them to love English" ( <i>Mariyam</i> ).
5	<i>adapting materials</i>	"When I plan I can see which part, which step is suitable for them, which part might be difficult and how I'm going to adapt it or create something new. I mean, I have some new ideas, which make teaching more exciting... When you are adapting something, you are not adapting it at once like magic and suddenly it will perfect. It requires hard work and concentration. The process of analysing and reviewing needs a clear mind, but I have a lot of ideas now" ( <i>Sarah</i> ).
6	<i>evaluating lessons and learning</i>	"Now I can evaluate myself, I mean, in terms of what I'm providing for my pupils, not evaluating my performance, how I'm doing in the classroom, but what I'm providing for the pupils, evaluating activities" ( <i>Waleed</i> ).
7	<i>developing reflective skills</i>	"I am a more reflective modern teacher than before. I know now how to reflect on any action" ( <i>Mariyam</i> ).
8	<i>use of language while reflecting</i>	"I can express any idea or anything that I want to say with the language, in different ways and focusing on the meaning" ( <i>Mariyam</i> ).
9	<i>justifying pedagogical decisions</i>	"Now I can change and I can also tell why I changed ... and the inspectors can't, I mean, force me to follow the teacher's book procedures as before" ( <i>Waleed</i> ).
10	<i>developing reflective attitudes</i>	"Now we have the awareness to exploit everything around us" ( <i>Mariyam</i> ).
11	<i>researching practice</i>	"The main thing is that now I've got the skills to make other researches" ( <i>Rashid</i> ).
12	<i>supporting other teachers</i>	"It will be easy to speak and to talk to them about what I have learned and what I think they should follow in their teaching" ( <i>Waleed</i> ).
13	<i>coping with contextual demands</i>	"Sometimes you can find some chance to change something. I mean, you are not going to... you can't do it 100% but you can do something, make something new, make using materials maybe easy for teachers, make the materials motivating for teachers to use. Even if they don't like teaching, when they find the materials facilitate teaching and make teaching easier, they will start to use [them]" ( <i>Waleed</i> ).

In commenting on this table, I should first re-iterate that I am using the term 'efficacious' in relation to these statements deliberately broadly. As I have commented elsewhere (Wyatt, 2015), open questions used in qualitative semi-structured interviews that are designed to capture the forward-looking capability that is central to the TSE beliefs construct (Bandura, 1997) generally use 'can you...?' structures. However, responses to such questions are likely to contain a variety of language forms, while the beliefs elicited themselves need disentangling. They may include, for example, agent-means and agent-ends TSE beliefs, GSE beliefs, reflections on self-esteem and the means-ends

beliefs that relate to outcomes. So reflexivity during interpretation is vital, during which there needs to be a consideration of contextual factors. Some readers might be surprised for example at my identification of an 'efficacious' element in the second statement in Table 1. The context, though, was that this teacher felt her earlier approach had been very teacher-centred, with the students there only to 'receive', as I have reported elsewhere (Wyatt, 2009a). She was now trying to encourage greater learner autonomy, indicating she had done this successfully (which would have strengthened her agent-means beliefs) and had means-ends beliefs that the new methods worked. Given the context, i.e. her regrets about her earlier teacher-centredness, which she had shared with me on several occasions (Wyatt, 2009a), her present attempts (she uses the word 'try') to change and her commitment to this change, there is a future (though not explicit) task orientation, in that there is an implication she will continue to try to encourage self-directed learning in her students and a confidence that she can.

Different dimensions of PK seem to interact with TSE beliefs with regard to specific tasks in different ways. In a case study of Rashid (introduced above), for example, focused on his task: 'supporting low achievers through groupwork activities', the combination of research methods used led to the identification of uneven PK growth (Wyatt, 2010a). In several respects, his PK seemed to develop considerably, e.g. "regarding the learners and learning, and the self, as both teacher and researcher... however, his PK in adapting the curriculum to meet local needs remained under-developed" (p. 610). Also, "while his classroom management skills seemed adequate for most purposes", they seemed less so for one activity type he sometimes needed to use, leading to the conclusion that "PK growth regarding teaching techniques was disappointing"; furthermore, handling contextual challenges imposed by a new headteacher's policies ultimately proved beyond him (p. 610). This uneven PK growth was mirrored in his TSE beliefs, with confident 'can do' statements in areas of strength replaced by much more tentative, self-doubting language surfacing when he talked, for example about the activity type (reading races in groups) he struggled with. How do these findings relate to the model (Figure 4)?

Well, firstly, that there was a good degree of fit between Rashid's PK and TSE beliefs suggests he was reasonably self-aware of the various qualities he brought to achieving his task: 'supporting low achievers through groupwork activities'. Given that his PK of the learners and learning were developing well, supported by keen observational skills and PK in conducting research, and that he was efficacious in these areas, this may have influenced his preferred strategy, focusing on group dynamics, and indeed his overall conceptualization of the task (Wyatt, 2010a); self-efficacy beliefs influence 'choice behaviour' (Bandura, 1986). Dimensions of PK in which he was less efficacious, e.g. regarding teaching techniques and in particular managing reading races, resulted in disappointing 'concrete' teaching experiences,

although with reflection on 'self-efficacy doubts' (Wheatley, 2002) these could nevertheless have stimulated learning. However, Rashid was not always particularly reflective, unlike other teachers in the multi-case study, e.g. Mariyam and Sarah, whose reflective qualities have been discussed elsewhere (Wyatt, 2009a, 2010b), and this may have inhibited his growth to some extent. For example, on one occasion, he attributed the problem with a reading race activity to the learners' language levels (rather than looking within, which, observing, I felt he could have done). More positively, a year later, he ascribed problems with a similar activity to his own shortcomings in managing it (Wyatt, 2010a, p. 608), which, in demonstrating willingness to reflect critically, suggests potential for growth. For such growth to occur, though, what is crucial is that the 'self-efficacy doubts' (Wheatley (2002) relate to TSE rather than GSE beliefs. Unfortunately, in Rashid's case however, some of these doubts, e.g. regarding handling contextual issues, became related more pervasively to GSE beliefs; this proved debilitating, leading to him abandoning valued objectives (Wyatt, 2010a), as Wheatley (2002) warns can happen.

The interaction between PK and TSE beliefs at each stage of the reflective cycle can influence, then, the direction the task takes, and indeed whether or not it is continued. Also, for TSE beliefs to grow in relation to the various dimensions of PK relevant to any particular task, critical reflection is needed. Yet, such reflection is less likely to occur if the teacher's attitude towards this is not characterized by open-mindedness, wholeheartedness and a sense of responsibility (Dewey, 1933). Various factors might influence teachers' reflective attitudes; if there is a good degree of fit between a teacher's PK and TSE beliefs, this might usually be a good sign. However, if teachers are over-eficacious with regard to specific tasks, they might be blinded to the self-doubt that would help them learn (Wheatley, 2002). An example of this scenario is provided in Wyatt (2008, 2015). Omar (the fifth teacher in Wyatt's [2008] multi-case study) seemed over-eficacious in using 'chain reading', a rather traditional method that is generally seen as having little pedagogical value, e.g. by Nuttall (1996); he nevertheless used this method with a view to achieving his task: 'helping learners overcome difficulties in reading'. Omar had powerful means-ends beliefs that the method worked (despite evidence that might suggest the contrary) and powerful agent-means beliefs in his ability to use the method skilfully; Omar's over-eficaciousness may have limited his growth. Growth can also be limited if self-efficacy judgements are too low, as Bandura (1986) suggests. However, as Wyatt (2008, 2015) highlights, if the caution in the self-expression of the belief is as a result of 'defensive pessimism' (Wolters, 2003), this might not necessarily indicate a problem; the quality and quantity of effort may still be high.

Growth may also be inhibited if 'sources of efficacy information' (Bandura, 1977) do not support 'enriched reflection' (Ur, 1996). Before discussing these sources, I should clarify why, in Figure 4 (above), I have used alternative

names for several of Bandura's (1977) terms. Firstly, 'verbal persuasion', an appropriate term perhaps for the coaching of someone with a phobia for snakes (Bandura et al., 1977), becomes 'interactive experience' in this model. This is because, in a teaching/mentoring/feedback context, and given current conceptualizations of school-based mentoring (e.g. Hobson, Ashby, Malderez and Tomlinson, 2009), the input we receive from others may be designed to help us reflect, conceptualise or plan for ourselves rather than to persuade us. I have also included, under 'vicarious and interactive experience', input from professional research (Ur, 1996). Another modification is that Bandura's (1977) term 'mastery experience' becomes 'concrete experience'; the latter term refers to a direct performance act that may be positive or negative, while 'mastery experience' suggests just the former.

Evidence of growth proceeding at a slower pace in an environment where reflection was not 'enriched' is provided in a case study of Waleed (introduced above), whose task was 'enhancing learners' motivation through creative use of materials' (Wyatt, 2011a). Waleed (whose PK and TSE beliefs seemed well-aligned) reported that early in his career he had tried to adapt materials to increase learners' motivation, but felt in hindsight that he had lacked sufficient knowledge and support to do this very effectively. Some of his innovations had worked, which had encouraged him to use them again. However, he reported, when he had subsequently encountered problems with those materials, as happened occasionally, he had given up, unsure how to proceed. Indeed, until he had joined the in-service language teacher education programme, Waleed felt he had been unaware of "the logical procedures" a materials designer might follow (para. 56); while, he reported: "his ability to design materials had developed very slowly in the years before he joined the course... [this] had accelerated very quickly in the first year of the programme" (para. 108). In this, he had been aided by the 'constructivist' nature of the course (Dangel and Guyton 2004).

Similarly, in another story from the same multi-case study (Wyatt, 2010b), Mariyam (introduced above) reported that early in her career she had not really developed very much as a reflective practitioner. Working with a traditional syllabus in a school with limited resources and without the guidance of a senior teacher, the only interactive support she received was that provided by inspectors, who visited occasionally offering directive supervision (Gebhard, 1990) that did not encourage her to reflect. As a result, "afraid" to do anything but follow instructions (Wyatt, 2010b, p. 253), she reported she had lacked openness to reflection (Dewey, 1933), any sense of autonomy (Ryan and Deci, 2000) as well as confidence in using English, although after gaining a few years' experience she found that teaching gradually became easier. When I met her several years later, at the start of the three-year in-service programme (from which she felt she benefited immensely), Mariyam was clearly already much more efficacious; she had benefited in the meantime from vicarious and interactive experiences

provided by short in-service courses and transfer to a new school that, through including mentoring at a time of curriculum renewal, provided an environment far more conducive to personal growth (Wyatt, 2010b, p. 254). Subsequently, Mariyam had been transferred again and promoted and, in her new school (where she was senior teacher leading a team of four), Mariyam's TSE beliefs task, 'mentoring teachers to become more reflective practitioners', was one she engaged in efficaciously, supported by her developing PK (Wyatt, 2008; Wyatt and Arnold, 2012).

Lessons that can be learned from examining Waleed's and Mariyam's career trajectories include the observation that in environments where reflection is not encouraged or supported through the provision of vicarious and interactive experiences that can enrich it, some growth will nevertheless occur. This can be explained by the notion of reflection *in* as opposed to *on* action (Schön, 1983). Even though Mariyam, for example, affirms that early in her career she did not reflect carefully and deliberately on her practice or even understand how or why to do this, she would nevertheless have benefited from reflecting in-action, i.e. intuitively (Eraut, 1995). Secondly, the stories of both teachers suggest that growth can be deeper and more rapid with appropriate support, with teachers not simply gaining from reflecting, conceptualizing and planning around their own concrete experiences, but also benefiting from 'enriched reflection' (Ur, 1996); both teachers affirmed this (Wyatt, 2008). As to the nature of the growth they experienced over time, this might prompt a revisiting of the relationship between TSE and GSE beliefs.

A glance at Mariyam's statements of efficaciousness (Table 1, above) reveals that these relate to GSE beliefs. Mariyam seems to have generalized from her developing PK in relation to specific tasks, so that GSE have developed out of TSE beliefs; this may be a natural process. Bandura (1977) suggests that such generalization occurs. Perhaps such development is not surprising, given the different properties of TSE and GSE beliefs, which can be understood more easily when one considers that beliefs vary according to their degree of centrality and their temporal and contextual dimensions (Pajares, 1992). While TSE beliefs are relatively more fluid, influenced by a host of contextual factors and varying according to specific tasks (although this is often misunderstood, e.g. by Chacón [2005]), GSE beliefs are more stable, less bound to any context and more robust. It is likely, then, that spiralling growth in TSE beliefs across a range of dimensions of PK in relation to the reflective fulfilment of specific tasks leads to the development of more stable and central GSE beliefs, as teachers generalize from particular instances to a broader picture of their own successes, gaining a greater sense of their own professional competence in the process, as they move towards expertise (Berliner, 1988). This explains the box on the right below Figure 4: 'The dynamic nature of TSE beliefs growth'.

Further to the relationship between TSE and GSE beliefs, findings relating to another teacher (Sarah) suggest GSE beliefs can function in a protective way,

as teachers take on an unfamiliar task, providing the new task is not too dissimilar. Sarah's general level of confidence in teaching across the English curriculum to Grade 9 classes seemed to protect her when she focused on the specific and challenging task of using communicative tasks to develop speaking skills. However, her well-developed GSE beliefs with Grade 9 were apparently unable to protect her when (as a result of curriculum changes) she concurrently took on the fresh challenge of teaching Grade 1 (Wyatt, 2008). Indeed, for example, with regard to adapting materials, data presented in Wyatt (2013a) suggest:

Sarah developed PK and TSE beliefs for Grade 9 first. It seems she was (only) able to draw upon this growing expertise in her work with Grade 1 after low TSE beliefs in classroom management techniques and instructional strategies had disappeared (p. 248-249).

This case highlights, then, the need to focus on TSE beliefs during teacher education; these beliefs can be impacted more easily than GSE beliefs. If TSE beliefs are low, perhaps reflecting limited PK in different dimensions of teachers' work, this might suggest different teacher education strategies, e.g. support in planning if the issue is adapting materials or 'hands-on practice' if the issue is a classroom management one (Wyatt, 2010a). In the case of 'over-efficaciousness' that relates to means-ends beliefs, other strategies might be employed, e.g. input from professional research or awareness-raising that might foster 'efficacy doubts' (Wheatley, 2002; Wyatt, 2015). So various strategies included in Figure 4 as 'vicarious and interactive experiences' can help. Sometimes, though, a forbidding context might limit growth on a particular task or curtail it, as in Wyatt (2010a). Some teachers in my original study (Wyatt, 2008) developed PK in handling contextual demands, e.g. Waleed and Sarah (Wyatt and Borg, 2011), but not all.

### ***Conclusions***

The conceptual model presented in this article illustrating how TSE beliefs might grow (Figure 4) emerged from an in-depth, qualitative, longitudinal multi-case study of five in-service English language teachers on a three-year teacher education programme in the Middle East; the study made use of a substantial body of data: 27 classroom observations, 38 semi-structured interviews, 25 reflective assignments and feedback on these, as well as field notes. Quality procedures included various forms of triangulation, 'member checking' (Stake, 1995) and the use of a critical friend, as findings were interrogated reflexively. Conclusions of the original study (Wyatt, 2008), reflected in various articles subsequently developed from it (e.g. Wyatt, 2010a, 2013a, 2014a, 2015), seem consistent with the conceptual model presented here. This suggests it is an appropriate representation of the target system (Norman, 2014). To what extent, though, can the model be used to fulfil an educative role with regard to the growth of TSE beliefs more generally?

Factors that might limit its applicability more broadly include the following: Firstly, Figure 4 is labelled 'growth in *language* teachers' self-efficacy beliefs'. This reflects one dimension of PK considered in relation to TSE beliefs growth: 'use of language while reflecting' deliberately on teaching; for this professional purpose, the teachers were using their second language, learned at school, as is common amongst language teachers around the world but obviously not usually amongst teachers of other subjects. Secondly, dimensions of PK explored in relation to developing TSE beliefs relate to features of the context, including characteristics of the in-service language teacher education programme that developed in response to contextual needs. For example, there was an emphasis (in course content and assignments) on analysing and adapting course materials at a time of curriculum renewal (Wyatt, 2014b), while teachers sometimes felt the need to justify pedagogical decisions to inspectors whose supervisory styles may often have been 'directive' (Gebhard, 1990) at the time, though there is evidence that approaches to supervision in this context are continuing to change (Al-Zadjali, 2009; Wyatt and Arnold, 2012). A third issue, perhaps, relates to the form of knowledge focused on: PK. This seems worthy of study since "much of what teachers know originates in practice and is used to make sense of and deal with practical problems" (Elbaz, 1981, cited in Borg, 2006, p. 13). Moreover, PK is the form of knowledge most "directly related to action" (Calderhead, 1988, p. 54). The intersection between knowledge, action and TSE beliefs, which mediate effort as knowledge is transformed into action (Raudenbush et al., 1992), made it seem highly relevant.

However, of the various forms of knowledge held by teachers, PK can be seen as just one. Shulman (1987), for example, emphasizes that teachers also possess formal knowledge, which, together with PK, influences their pedagogical content knowledge (PCK). PCK develops through "the blending of content and pedagogy into an understanding of how particular topics, problems or issues are organized, represented, and adapted to the diverse interests and abilities of learners, and presented for instruction" (p. 7).

Much depends on one's epistemological stance. According to Fenstermacher (1994), researchers focused on PK, including Elbaz (1981) and Clandinin and Connelly (1987), are asking: 'What do teachers know?', while Shulman (1987) and his associates are enquiring: 'What knowledge is essential for teaching?'. In my PhD research (Wyatt, 2008), I subsumed the second of these concerns under the first, following Borg (2006, p. 35), who characterizes teachers' knowledge as "personal, practical (though informed by formal knowledge), tacit, systematic and dynamic... defined and refined on the basis of educational and professional experiences throughout teachers' lives". However, researchers adopting an alternative stance, e.g. perhaps in exploring the PCK (Shulman, 1987) of pre-service teachers, together with their developing TSE beliefs, might need to adapt the conceptual model (Figure 4) accordingly.

As to the strengths of this model that might allow it to fulfil an educative role, a key issue is that it addresses the various criticisms made by Fives and Alexander (2004), Wheatley (2005) and Wyatt (2014a) of Tschannen-Moran et al.'s (1998) conceptual model. It is able to do this through drawing on insights from research in education as well as psychology, thus merging fields as Wheatley (2005) recommends. Understandings generated have the potential to benefit teacher educators as well as researchers.

Some key points to summarise are as follows:

- The development of TSE beliefs is linked intimately with knowledge growth (explored here in relation to PK).
- TSE beliefs impact every stage of a reflective cycle, as educators plan, teach, reflect and conceptualize.
- Various dimensions of PK, e.g. regarding learners and learning, approaches to teaching, the curriculum, the self, the subject matter and the broader school context (Wyatt, 2009b), are drawn upon at each stage of the reflective cycle, interacting with TSE beliefs.
- TSE beliefs need to be understood not in isolation but in relation to other beliefs, orientations, affective and physiological states influencing the quality and quantity of effort put into any given task.
- TSE beliefs and other cognitions shaping effort need examining in relation to PK for both their degree of fit and their nature (agent-means, means-ends or agent-ends), since this analysis can influence teacher education strategies employed.
- Contexts characterized by 'enriched reflection' (Ur, 1996) can stimulate spiralling growth in PK and TSE beliefs.
- Reflection and self-doubt (Wheatley, 2002) are crucial to the processes through which PK and TSE beliefs develop.
- Relatively fluid task-, domain- and context-specific TSE beliefs feed into the development of more stable and robust GSE beliefs.
- Stable GSE beliefs may protect teachers undertaking new tasks, for which their TSE beliefs may be low, but only perhaps if the new task is sufficiently similar to previous ones.
- TSE beliefs may be more easily impacted by teacher education than GSE beliefs; this suggests the task-specific level is the one at which teacher educators need to work.

While Tschannen-Moran et al.'s (1998) model (Figure 1) was perhaps most valuable in hindsight for highlighting the importance of psychological 'sources of efficacy information' for teachers as they engage in context-specific tasks, the key contribution of the current model (Figure 4) is to demonstrate the relationship between TSE beliefs and learning (Wheatley, 2005). This contribution seems urgently required, given misconceptualizations that endure about the nature of TSE beliefs and the way in which they interact with other cognitions, e.g. in Lee, Cawthorn and Dawson (2013), who seem to

ignore the benefits of doubting one's self-efficacy beliefs in the mistaken but prevalent assumption that 'high' TSE beliefs are always 'good' (Wheatley, 2002). Reflection, though, that embraces self-doubt, is key to the growth process; the conceptual model provided here (Figure 4) visually underlines this and would seem to have the potential to inform future research centred on the goals of 'democratic education' (Wheatley, 2005), as part of a continuing search to find contextually-sensitive ways to better support learning. The use of alternative research paradigms, e.g. as called for by Labone (2004), Wheatley (2005) and Wyatt (2014a, 2015), may be part of this endeavour.

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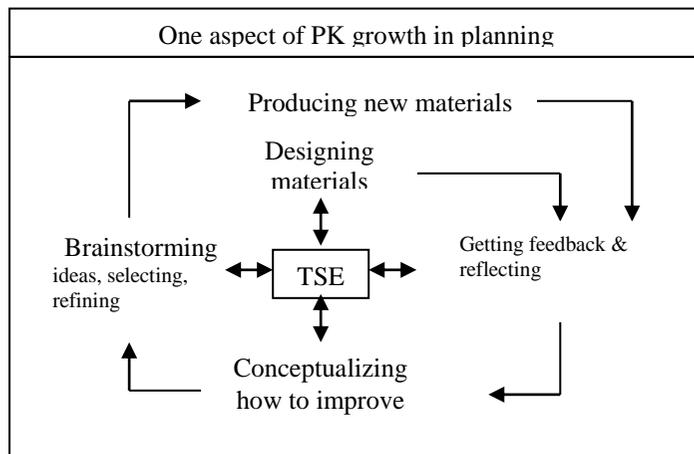
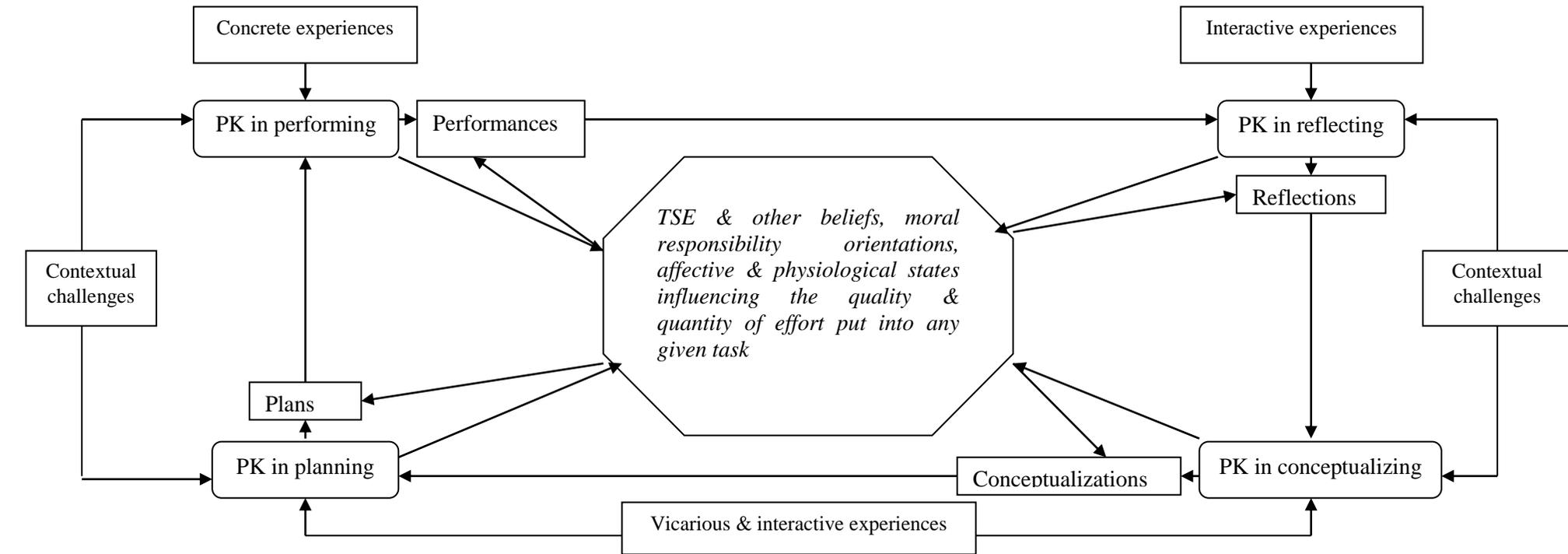
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Figure 4. Growth in language teachers' self-efficacy (TSE) beliefs



- Practical Knowledge (PK) in ...
- *Learners & learning*
  - *Teaching approaches*
  - *Organizing the class*
  - *Analyzing the coursebook*
  - *Adapting materials*
  - *Evaluating lessons and learning*
  - *Developing reflective skills*
  - *Use of language while reflecting*
  - *Justifying pedagogical decisions*
  - *Developing reflective attitudes*
  - *Researching practice*
  - *Supporting other teachers*
  - *Coping with contextual demands*

