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Primary Pre-Service Teachers' Perceptions of Course Related Factors that Enhance Instructional Self-Efficacy

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Abstract: Pre-service teachers' instructional self-efficacy, that is, their belief in their own ability to foster learning with instructional tactics, is one predictor of classroom effectiveness. This qualitative investigation used focus groups to gather data from fifty-one pre-service teachers enrolled in one Bachelor of Education (Primary) degree in Australia. Pre-service teachers were asked their perceptions of course related factors that increased their instructional self-efficacy. Focus group transcripts were themed and triangulated with prioritised lists developed by each of the focus groups. Pre-service teachers identified vicarious and enactive modelling, accompanied by professional conversations and a supportive learning culture as contributors to instructional self-efficacy. They also identified the need for continued scaffolding in mastery components of the course, recommending a specific strategy to enhance mastery learning.

Study Aims and Relevance

The preparation of Australian pre-service teachers (PSTs) comprises several components of professional practice, one of these being instructional tactics, including narrating, explaining, demonstrating and questioning. These tactics form the basis of a PST's ability to communicate effectively in the classroom and undergird more sophisticated strategies such as concept development, discussion and cooperative learning. Although generally assumed that knowledge and opportunity for application will equip PSTs for the classroom, there is a gap between theory and practice. While many PSTs make the transfer from theory to practice in a competent manner, others struggle to use instructional tactics effectively in a classroom setting.

This investigation into PSTs' instructional self-efficacy (ISE) was prompted by the gap between theoretical knowledge of skills and mastery of skills. While several studies measure the self-efficacy of pre-service teachers at varying points in their course (for example, Pendergast, Garvis & Keogh, 2011; Uzuntiryaki, 2008; Main & Hammond, 2008), this investigation responded to the need for more qualitative research in this field and investigations that focus on specific rather than general self-efficacy beliefs (Wyatt, 2015). This investigation aimed to gather rich data from PSTs regarding self-efficacy in a focused area of teaching; instructional tactics, thereby giving PSTs a voice in their own learning. The purpose of this investigation was twofold; to explore perceptions of PSTs regarding ISE, and to determine if the strategies they identified aligned with prior research. It was anticipated that the combination of findings from these two purposes would result in a model that could advance the understanding of mastery learning and Instructional Self-efficacy for PSTs enrolled in the BEd program.

Theoretical Perspectives

Historical Context

Based in social cognitive theory, Bandura's (1977) extensive study of self-efficacy challenged behavioural theory, and how people analyse changes in present behaviour and predict changes in future behaviour. Bandura (1986) defines self-efficacy as "people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances" (p. 103). Within the field of teacher education, self-efficacy plays a role in developing effective teachers (Pendergast, Garvis & Keogh, 2011), with Brownell and Pajares (1999) purporting that "teachers' efficacy beliefs are contextual judgments of their capability to succeed in particular instructional endeavours" (p. 154). Therefore, ISE is an important consideration in teacher education programs, as it relates both to PSTs' beliefs about their own teaching ability, and their ability to help students learn (Schunk, 2004).

Bandura was the first to establish links between self-efficacy and observational learning; a critical component in social cognitive theory. He noted that individuals learn from modelling, which may be vicarious where one observes another modelling the desired behavior, or enactive, where the observer acts out the modelled behaviour with the intent of achieving mastery. Bandura (1977) outlined four stages of observational learning. The first is *attention* to the required skill, which may be influenced by the observer's perceived similarity to the model, perceived competence of the model and perceived status (Bandura, 1977; Horner, Bhattacharyya & O'Connor, 2008; Sternberg & Williams, 2002). The second stage is labeled *retention* and requires memory of the skill, often acquired through mental or physical rehearsal. The third stage requires *replication* and tests the observer's ability to duplicate the skill (Horner et. al., 2008). The final stage of *motivation* implies an external or internal reason to imitate the model (Schunk, 2004). In relation to observational learning of instructional tactics, Schunk (2004) points out the benefits of competent peer modelling, and makes the salient point that "the highest degree of model-observer similarity occurs when one is one's own model" (p. 103). It is important to note that modelling is an ongoing process that requires multiple demonstrations across varied settings for optimum results (Zimmerman & Schunk, 2004).

Another perspective on self-efficacy is provided by Csikszentmihalyi, best known for his research in the area of positive psychology and particularly the notion of flow. Csikszentmihalyi (1997) has identified a state in which people are engaged with everyday life to the extent that they achieve optimal flow; a natural high. This state of 'flow' is linked to self-efficacy and is enhanced by immersion in the activity, focused attention, clear goals, enjoyment, encouraging social context and personality (Csikszentmihalyi, 1990; Marr, 2008). Although the approaches to self-efficacy taken by Csikszentmihalyi and Bandura differ somewhat, their research indicates that observational learning, focused attention and task engagement, along with a positive social context and clear goals should provide a learning environment that is conducive to building ISE in PSTs.

Current Context

Much of the research pertaining to PSTs' self-efficacy comes from quantitative studies focused on measuring teacher self-efficacy using self-efficacy scales developed for this purpose (Tschannen-Moran & Woolfolk Hoy, 2001; Gibson & Dembo, 1984). On the whole, these studies support a nexus between self-efficacy and performance in teacher education programs

(Woolfolk & Hoy, 1990; Jeanneret & Cantwell, 2002; Hutchinson, Follman, Sumpter & Bodner, 2006; Ipek & Camadan, 2012). Loreman, Sharma and Forlin (2013) in their international study also established a link between the nature of the teacher education courses and self-efficacy levels, although a study by Hardy, Spendlove and Shortt (2015) indicated that teacher education courses appear to have a limited impact on PST self-efficacy. The evidence for a self-efficacy/performance nexus, although not always consistent, is supported by several individual studies where mastery experiences were found to increase ISE. These include studies on Physical Education PSTs (Gurvitch & Metzler, 2009), PSTs taking a physics course (Narayan & Lamp, 2010) and a study where PST reading tutors increased self-efficacy in teaching reading (Haverback & Perault, 2008). Each of these studies highlight the importance of deliberation on what is taught to PSTs, and more importantly, how it is taught.

PSTs enter teacher education courses with pre-conceived ideas both about teaching practice, and about themselves as teachers (Stanwick & Paynter, 1993). Early in their course, they appear to hold elevated perceptions of themselves as classroom practitioners (Ehrlinger & Dunning, 2003; Hardy, Spendlove & Shortt, 2015). Furthermore, their perceptions do not always align with best educational practice, and may stem from memories of their own educational experience rather than from a sound pedagogical stance (Pendergast, Garvis & Keogh, 2011; Hattie, 2009). In this context, the importance of structuring teacher education courses to build ISE becomes evident.

Recent studies support the positions of Bandura (1986), Schunk (2004), Albion (1999) and Horner et al. (2008) on the central role of modelling in developing ISE in PSTs (Engin, 2014; Karimi, 2011). Engin (2014), in addition, builds on the work of Vygotsky and posits that “scaffolding is the intervention required for a learner to extend their Zone of Proximal Development” (p. 27). Both vicarious and enactive modelling are part of the scaffolding process, although Lee and Ertmer (2006) point out that while vicarious experiences do not raise self-efficacy to the same extent as enactive or personal skill mastery experiences, they may offer a “more feasible method for enhancing pre-service teachers’ self-efficacy” (p. 66) when considered against the logistics of teacher education courses. Hattie (2009) has given close attention to this aspect of teacher education programs and concludes that of the pedagogical approaches used, micro-teaching (peer modelling) ranks as one of the most effective while conceding that “all components should be included: theory, demonstration and practice, as well as feedback and coaching, preferably in a distributed rather than condensed manner across many sections” (p.112).

Providing constructive feedback is also prominent in building ISE. Hattie (2009) places feedback high on the list of effective strategies, along with Lackey (1997), Kourieos (2016) and Engin (2014). Engin elaborates on the idea of professional conversations, explaining how tacit knowledge becomes visible when the lecturer and PSTs engage in intentional discussions about instructional tactics, while Graham, Lester and Dickerson (2012) have explored and identified the positive benefits of professional learning conversations with first year teachers.

Personal goal setting is another factor linked to high levels of self-efficacy. Goal setting elicits a self-energising effect on learners (Hattie, 2009). Bandura (1997) asserts that PSTs with a robust sense of self-efficacy accept and aspire to more challenging goals and evidence indicates that identifying and pursuing appropriate goals enhances self-efficacy (Liem, Lau & Nie, 2008). Goals should be specific, focused, have a suitable time projection, and be challenging yet attainable, conditions which increase motivation and self-efficacy (Schunk, 2004).

Also mentioned in the literature surrounding self-efficacy is teacher personality or disposition. Although PST disposition cannot be taught and is therefore a limitation of teacher education programs, Poulou (2007) identifies personality attributes combined with ability and motivation, as the basis of self-efficacy in PSTs. Csikszentmihalyi (1997) further sheds light on the connection between personality and self-efficacy, stating, “It is not the skills we actually have that determine how we feel, but the ones we think we have” (p. 75). The literature also highlights the role of social encouragement in building self-efficacy (Csikszentmihalyi, 1990; Marr, 2008) by establishing a culture of respect and encouragement.

Few of the studies cited intentionally explore the perceptions of PSTs towards ISE, and it was to represent their views that this research investigation was designed.

Method

This investigation used a qualitative approach to determine PSTs’ perceptions of how their course may enhance ISE. As already outlined, most research in PST self-efficacy has focused on quantitative studies that measure self-efficacy. This investigation was focused on discovery and understanding if and how PST perceptions of self-efficacy aligned with already existing findings and models. It was an attempt to listen to their collective understanding of what factors positively impacted their ISE, and also how and why these factors were perceived as important. Participants were education students at the midway point of a four year Bachelor of Education (Primary) degree (n=51). All PSTs had completed at least two school placements, and covered foundational instructional tactics in their course as well as several curriculum and general education subjects. The timing was important as self-efficacy beliefs of pre-service teachers in earlier stages of their course may be impacted by a lack of knowledge and understanding about teaching roles (Pendergast, Garvis, & Keogh, 2011).

Focus groups were the chosen research instrument as they facilitated discussion and resulted in outcomes that were not entirely dependent on interview questions (Veal, 2005; Litosseliti, 2003). As the focus groups were structured on already existing tutorial classes, the limitations of larger than usual group sizes, and reluctant or non-participating members; factors that can impede open discussion, were alleviated (Lodico, Spaulding & Voegtler, 2010). It was also believed that conversations would provide richer data from the PSTs’ perceptions than a questionnaire, and would be more feasible and productive in generating ideas than individual interviews. Four focus groups operated for this investigation. Participants were informed of the purpose and nature of the research and gave voluntary consent by attending tutorials on specified dates, with 70% of the cohort choosing to participate. The average size for the groups was 13 people, allowing for animated discussion without fragmentation. Data were collected from the focus groups in two ways; through audio recordings of the groups’ discussions and by each group appointing a scribe to record manually, on flashcards, each of the strategies discussed, along with a ranked number. The recordings were transcribed and coded according to key words used in the focus groups and the frequency with which key words were used. From the coding, themes emerged and were noted. During focus group sessions, each focus group prioritised the flashcard strategies through a voting system decided by group members. The flashcards were numbered according to their ranked importance, number one being the most important. This enabled the researcher to triangulate the prioritised flashcards with the themes identified from the transcripts thus confirming the authenticity of the results.

The term instructional self-efficacy was explained to each focus group, followed by the question, “What teaching and learning strategies are likely to improve your instructional self-efficacy on your next school placement?” Minimal prompting ensured that the ideas were generated by the pre-service teachers and not primed or influenced by the researcher, although some clarification occurred. In responding to the question, PSTs were asked to limit their answers to factors that could be related to in-semester coursework. This limitation was intentional as possible external factors such as personality and PST/supervising teacher relationships were deemed to be outside the parameters of the research focus which was to determine effective teaching and learning strategies that positively impacted ISE.

Results

In response to the first research question, a thematic analysis of focus groups’ transcripts revealed four themes covering 18 strategies, 15 of which were self-identified by the focus groups and the transcripts, and a further three which were identified from the transcripts alone. These results were combined in a table which allowed identification of the perceptions of each focus group and the cohort as a whole (Table. 1). Each factor or strategy self-identified by the focus groups was given an overall ranking, based on the combined ranking of the focus groups. The strategies were clustered into the emerging themes of modelling, scaffolding, professional conversations, and learning culture.

THEM	STRATEGY OR FACTOR	FG 1	FG 2	FG 3	FG 4
E		ID	R	ID	R
KEY: FG (focus group), ID (strategy identified), R(ranking by importance), n (item not ranked by FG), numeral (overall ranking)		ID	R	ID	R
MODELLING	2 Lecturer modelling in lectures	✓	2	✓	1
	3 Micro-teaching	✓	=1	✓	3
	4 Demonstration lesson in classroom	✓	5	✓	5
	5 DVD in class			✓	2
SCAFFOLDING	1 Scaffolding booklet	✓	1	✓	4
	6 File of lesson plans	✓	=1		
	7 Set questions for each instructional tactic	✓	=1		
	8 Presentations	✓	4		
	9 Supporting resources	✓	7		
	10 Adapt tactics to wider age/content			✓	2
	11 Lectures			✓	6
	12 Different strategies			✓	8
	13 Greater emphasis literacy & numeracy			✓	9
	14 Content matter			✓	10

		15	Readings and essays	✓	11	✓	5
PROFESSIONAL CONVERSATIONS	n	Open dialogue (explanation, clarification, questions)	✓	n	✓	n	✓
	n	Lecturer and peer feedback	n	✓	n	✓	n
LEARNING CULTURE	n	Supportive learning environment	✓	n	✓	n	✓

Table 1 Rank and frequency of focus group categories according to themes

Modelling

Four modelling strategies emerged from the focus group transcripts and ranking lists. These were lecturer modelling in class (R=2, 2nd ranked in importance), micro-teaching (R=3), demonstration lessons (R=4) and video links of teachers demonstrating instructional tactics (R=5). Participants also perceived that lesson planning was helpful as they mentally rehearsed the tactic while planning their micro-lesson.

Lecturer Modelling in Class

All groups included the modelling of instructional tactics in class by the lecturer as a factor in developing instructional self-efficacy, resulting in an overall second ranking (Table 1). The students were vocal on the topic of lecturer modelling. One comment, which was typical of all groups said, "...worked very well when we were doing cooperative learning. The structures were modelled...I felt more confident about teaching a micro-lesson." There was also agreement that modelling of individual tactics worked best when it was ongoing, rather than a one off demonstration.

Micro-Teaching

Micro-teaching (R=3) is a form of peer modelling that simulates a classroom situation. This strategy generated the most discussion with PSTs both recognising its value and offering constructive criticism on its facilitation. Comments acknowledged the benefits of, and frustrations with this process. "I don't like it, but it's good. I make mistakes," followed by the comment by another participant, "It's better to make them now than in the classroom," and "Sometimes we are too rushed." Also included in these discussions was a desire for smaller groups, opportunities to teach children rather than peers, and experience with a wider range of stages. Despite these perceived deficiencies, there was overall consensus that being the model for one's peers assisted in skill mastery, and providing the experience was a positive one, enhanced ISE. Perspectives on micro-teaching can be summed up by the comments, "The micro-teaching

gives us both understanding and confidence,” and “The ones [micro-lessons] you teach improve your confidence. The ones where you watch improve your understanding.”

Still a part of micro-teaching, but distinct from being the model is observing one’s peers model an instructional tactic. Although none of the focus groups created a separate category for this mode of vicarious modelling, they did comment on it and recognized its value especially when their peers achieved mastery, “Some...I’ve seen are heaps good... but if they’re not quality, you don’t get much from them.” Overall, observing their peers deepened PSTs’ understanding of the instructional tactics.

Demonstration Lessons

A demonstration school facilitated pre-negotiated demonstration lessons by experienced teachers. These lessons were viewed in the classroom, with the overflow watching live feed video in another building on site. This strategy was ranked fourth overall in the list of factors determining ISE. Two focus groups gave a ranking of five and one a ranking of four, and the fourth group did not even rank it. This group did; however, suggest an alternative. Instead of demonstration lessons, they proposed the inclusion of video clips in lectures and they ranked this second in importance. The transcripts revealed that the issues with demonstration lessons centred around technological issues with the live feed video experiences rather than the in-class demonstrations, examples of which were, “The sound isn’t clear... you can’t hear.” “You can’t see the whole classroom, only a tiny bit.” “A waste of time.” “No, not completely...sometimes it’s good.”

Scaffolding

One major scaffolding strategy and ten minor strategies were identified by the PSTs. The major factor, a scaffolding booklet (R=1) was included by all focus groups and ranked first by three out of four groups.

Scaffolding Booklets

This was the only scaffolding item that all focus groups identified. Three focus groups gave this item a rank of one, and one focus group placed it fourth. During the ranking activity, the reasons for this first choice were clearly articulated. “We forget exactly how some things, for example, how cooperative learning structures work, and having a booklet with the pictures gives us confidence to try them.” Another commented, “It’s a long time from class to being in the school. The booklet brings back the memories,” supported by, “I like to have something there that I can refer back to.” One PST comment highlighted the practical limitations of the booklet, “The booklet’s no good if we haven’t seen the tactic”, a comment that was affirmed by other participants and other focus groups.

Other Scaffolding Strategies

Other strategies perceived to support PSTs in mastery of instructional tactics were sample lessons plans, questions for particular strategies, extra resources, adaptations of instructional tactics to other content and age levels, varied strategies, and an emphasis on content matter, particularly in literacy and numeracy (Table 1). These scaffolding strategies were spread across the focus groups (Table 1).

Professional Conversations

None of the focus groups listed professional conversations in their list of factors contributing to enhanced ISE, but every focus group discussed the need for question time, clarification, discussion and feedback. These comments crossed over all types of modelling, with a desire to “discuss what happened” after demonstration lessons, and comments like, “Sometimes it doesn’t make sense and I never get to find out what [the teacher] was trying to achieve.” Two groups highlighted the importance of a comprehensive debrief session after the demonstration lesson where they could ask questions and have points clarified. Also evident was the wish for increased interactive discussion during and after micro-teaching sessions through comments such as, “I’d like to discuss what happened a bit more but we run out of time,” and, “Sometimes I have a question, but by the end, I’ve forgotten it”. The need for feedback after enactive modelling was highlighted, with one focus group suggesting peer evaluation of micro-lessons.

Learning Culture

Discussion about social encouragement was lively when focus groups discussed micro-teaching and revealed both an element of anxiety, and recognition of different personality types. All agreed that the attitude of their peers impacted their confidence and ultimately their ISE. One PST commented that “You’re there to support each other and it’s much easier when you’re all in it together.” In contrast, some PSTs found peer-teaching “daunting”. The importance of a respectful and encouraging learning environment was clearly established from the focus groups’ transcripts.

Discussion

Resulting from this investigation is a model for building ISE in one teacher education course (see Figure 1). Closely aligned to Bandura’s four stages of observational learning, Figure 1 displays a sequential model based on PSTs’ perceptions of course related factors that enhance their ISE. Although linear, the whole model is set within a culture of respect and encouragement, and each modelling element is linked to the next by scaffolding which PSTs felt facilitated their ISE as they moved through each stage identified by Bandura (1997). Drawing from the focus group transcripts, are words that relate to professional conversations and opportunities for clarification and feedback. These were deemed by PSTs to facilitate understanding which contributed to ISE. The sequential nature of this model and use of multiple modelling across varied settings support Zimmerman and Schunk’s (2004) self-efficacy beliefs and also those of

Hattie (2009) who believes in intentionally spreading varied strategies throughout teacher education courses.

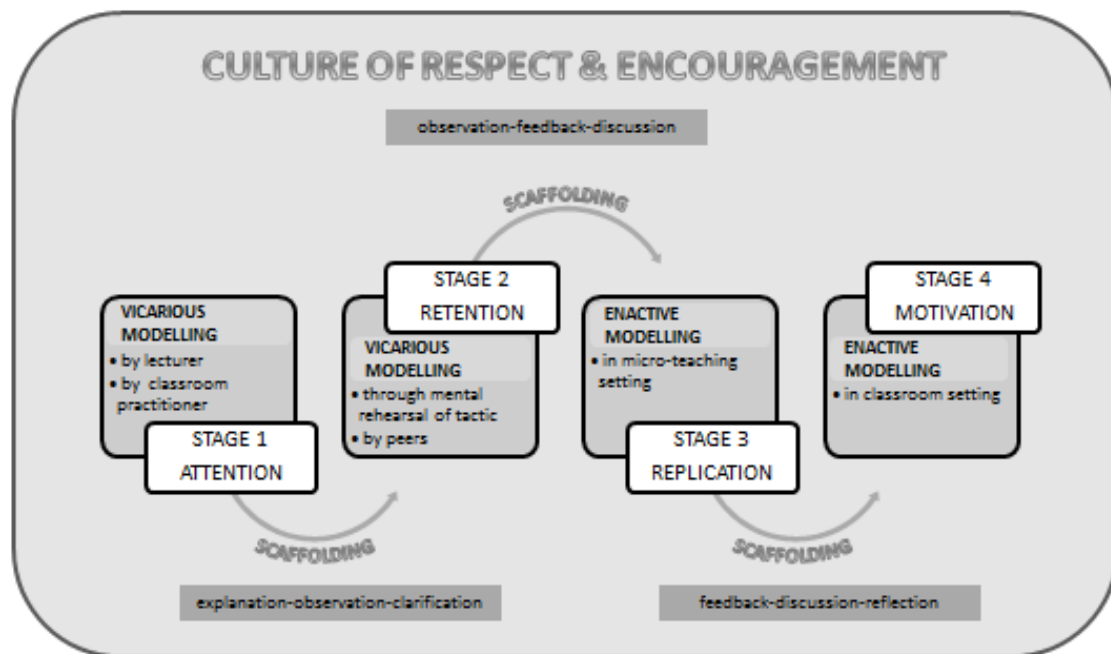


Figure 1: Instructional self-efficacy model (ISE), based on Bandura (1977) and PST perceptions

Three out of the four top strategies that PSTs identified as increasing their instructional self-efficacy related to modelling, a factor that features strongly in the literature (Bandura, 1986, Schunk, 2004; Sternberg & Williams, 2002).

While it is predictable that modelling would feature in the focus group discussions, the importance placed on vicarious modelling in lectures above modelling by an experienced teacher deserves consideration (See Table 1). A possible explanation for this may be the PSTs lack of connection with an unknown classroom teacher at the demonstration school, resulting in superficial attention to the modelling process. The work of Horner et al. (2006) indicates that perceived competence, status and similarity to the model may also have been mitigating factors in this investigation. Both lecturer modelling and demonstration lessons align with Bandura's (1977) Stage 1 *Attention* as both give opportunities to observe the voice production, body language, timing and vocabulary required to effectively use the instructional tactic being modelled.

Alternatively, the mental rehearsal of the tactic that PSTs experienced while planning a lesson, and observation of peers modelling the instructional tactic fitted more closely with Bandura's stage of *Retention*. PSTs perceived these forms of modelling functioned as prompts, rather than initiators for understanding the various elements of instructional tactics. Both these forms of vicarious modelling support memory retention of the instructional tactic, and provide a sound follow up to the initial modelling by the lecturer and classroom practitioner.

Enactive modelling in the form of teaching a micro-lesson to peers was ranked overall third by the focus groups. Participants in each focus group articulated the value of teaching in front of their peers. Even those who found this experience somewhat anxiety producing, still affirmed the value of acting as one's own model which Schunk (2004) identified as the most

effective form of modelling. Marr (2008) and Csikszentmihalyi (1990) concur, citing immersion in the activity and focused attention on the activity as factors for enhancing self-efficacy: factors present when teaching a micro-lesson. In contrast to the literature, vicarious modelling by the lecturer was perceived as being more effective than enactive modelling. A number of variables may help to explain this discrepancy with the literature. The first relates to perceived status (Horner et al., 2006) with PSTs possibly trusting the modelling of a lecturer more than their own modelling. Second, heightened emotional arousal, while modelling an instructional tactic to peers, may offset any feelings of success. Lastly, PSTs indicated that the quality of the feedback they received impacted their confidence in future lessons, whereas this was not an issue when observing another model. Enactive modelling was placed in the *Replication* (Production) stage of the model. This stage requires PSTs to replicate an instructional tactic that has been modelled to them.

What Figure 1 identifies, is that, while concurring that modelling is important in developing ISE, PSTs perceive that vicarious and enactive modelling alone are not enough. All focus groups placed importance on the substantive communication that occurred through explanation, observation and clarification after vicarious modelling; and feedback, discussion and reflection after enactive modelling. The PSTs felt that there was limited opportunity during or after a demonstration lesson to explain or clarify steps or actions, and wanted a longer debrief time, while those watching the video link had to contend with technology related distractions (poor picture/sound and narrow camera view), which they felt called for more discussion and clarification than they received. Professional conversations and an open culture where questions can be asked, and conversations initiated about instructional tactics were identified as important in the transcripts of all focus groups. The positive value of feedback in enhancing self-efficacy is supported by the literature (Engin, 2014; Hattie, 2009; Lackey, 1997), with Engin (2014) elaborating further on the idea of professional conversations and their role in making tacit elements of instructional tactics visible. It was very clear that professional conversations played a central role in PSTs' perceptions of enhancing ISE.

The notion of scaffolding is one that emerged strongly from the focus groups (see Table 1). Although modelling is a form of scaffolding (Schunk 2004), PSTs identified the need for further scaffolding to achieve mastery. Three out of four focus groups ranked scaffolding booklets as the number one strategy for increasing instructional self-efficacy. All focus groups based their choice on the same example: a booklet on cooperative learning compiled for a previous pedagogy unit. The general consensus was that booklet had successfully supported their learning, therefore PSTs perceived an instructional tactics booklet that was used throughout each stage of the mastery learning sequence and which reviewed each tactic, offered suggestions on how it could be implemented across the curriculum and different age groups, and gave specific examples, would help them implement the instructional tactics effectively in the classroom. Focus groups, did acknowledge, however, that this form of scaffolding had limitations and needed to be used parallel to the modelling. A range of additional scaffolding strategies were suggested (Table 1), and although none received the same widespread recommendation as the scaffolding booklet, the recommended content of the scaffolding booklet aligned closely to some of the other scaffolding strategies identified (Table 1).

Emerging from the focus group transcripts, were comments that established the importance of a learning culture that is respectful, open and varied. Respect and encouragement were perceived especially important when PSTs were pushed out of their comfort zones during micro-lessons, a finding that is consistent with Bandura (1977), Csikszentmihalyi (1990), and

more recently, Marr (2008). Although PSTs wanted respect, they also wanted an open culture that was honest and would offer practical assistance. Reflected both in Table 1 and in the focus group transcripts are references to 11 forms of scaffolding that also indicated the desire for a varied learning environment. To a certain extent, the success of the modelling, scaffolding and professional conversations in raising ISE depends on the learning culture in which they occur. Consequently, the ISE model is set within a learning culture of respect and encouragement (Figure1).

Noticeably absent from the identified strategies contributing to instructional self-efficacy in this investigation was goal setting, although prominent in the literature (Marr, 2008; Hattie, 2009; Csikszentmihalyi, 1990). This could be due to limited experience with goal setting in a learning context.

Bandura's *Motivation* stage has also been included in the ISE model, and has been linked to professional experience in a placement school. Ideally, PSTs felt the placement should intentionally consolidate skill mastery, with opportunities for further vicarious and enactive modelling and professional conversations in a supportive environment. The motivation in this stage is provided by the setting where real learning consequences apply, and also through observation and assessment by an experienced classroom teacher.

This cohort of PSTs clearly identified primary and secondary factors which influenced their ISE, and the learning culture in which they perceived they would develop ISE.

Future Research Directions and Conclusion

The first research question asked what course related factors PSTs felt impacted their ISE in a positive way. Four factors emerged, with an explicit awareness of the value of modelling and scaffolding, and an implicit awareness of the value of professional conversations and a supportive and encouraging learning culture. The second research question explored the relationship between this investigation and prior research, much of which has been quantitative and aimed at measuring self-efficacy, rather than enhancing it. The literature supports strong links between modelling and self-efficacy, a finding that holds true for ISE in this investigation. There is also support for scaffolding to improve self-efficacy, although the precise nature of the scaffolding booklet adds a further dimension to previous knowledge. The literature also supports connections with social support and feedback, but less intentionally links self-efficacy with other aspects of professional conversations as highlighted in this study. Although goal setting was linked to self-efficacy in the literature and not in this investigation, the limitations of this study discourage any firm conclusions in this regard. This could be an area of further research.

This investigation further contributes to the body of literature surrounding PST self-efficacy by exploring the nexus between ISE and specific course related factors as recommended by PSTs themselves. In doing this, it demonstrates the feasibility and value of intentionally considering all factors from multiple perspectives when constructing learning sequences that necessitate skill mastery in teacher education courses. The need for ongoing scaffolding was reinforced in this investigation and a specific example offered. Additionally, the inclusion of professional conversations and the establishment of a learning culture that is respectful, open and varied were identified as favourable to the enhancement of skill mastery in the area of instructional tactics, and therefore, ISE. Considering the exponential growth of online learning in higher education, there is opportunity for specific research that targets ISE of e-learners with

respect to skill mastery, scaffolding, professional conversations and developing positive e-learning cultures.

The ISE model that was constructed from the data has benefitted the institution where the research was conducted. Although there are limitations in generalising from the ISE model, it may spawn ideas that could be adapted to other teacher education programs. This could have positive benefits for pre-service teachers, for teacher education providers and ultimately, for schools and the children in them.

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