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Classroom Ready?
Pre-Service Teachers' Self-Efficacy for Their First Professional Experience Placement

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Abstract: This study investigates the level of teacher self-efficacy (TSE) among 90 secondary preservice teachers (PSTs) before their first teaching practice and the factors which influenced their ratings. The Scale for Teacher Self-Efficacy (STSE) (Pfitzner-Eden, Thiel, & Horsley, 2014) was adapted by adding some open-ended questions. Data were analysed via SPSS and NVivo separately. Results show a relatively lower level of TSE compared with previous research and classroom management was of greatest concern. PSTs reported factors such as lacking teaching experience, previous informal teaching and other relevant experience, teacher education program, personal qualities and characteristics, and teacher-student relationship. Implications, limitations, and suggestions from the study are discussed.

Introduction

Teacher self-efficacy (TSE) is the extent to which teachers, including pre-service teachers (PSTs), believe they are capable of achieving certain specific teaching goals. This concept has been applied as a subjective indicator of how well prepared a teacher is to carry out actions in order to achieve future teaching goals. Investigations into TSE have identified its role in improving teachers' commitment to the profession (Chesnut & Cullen, 2014), their willingness to implement innovative teaching practices (Kavanoz, Yüksel, & Özcan, 2015), and the learning achievement of students (Caprara, Barbaranelli, Steca, & Malone, 2006). TSE is most malleable when teachers are undertaking their initial teacher education studies (Winters, 2012) and its most dramatic changes have been found during PSTs' professional placement (Tschannen-Moran, Hoy, & Hoy, 1998) when they integrate their theoretical coursework into "real" teaching. Furthermore, it is extremely challenging to modify TSE once it has been established (Wheatley, 2005).

Previous research on TSE has been predominantly quantitative (Klassen, Tze, Betts, & Gordon, 2011), mainly through the use of scales (Kazempour, 2014). To keep an open mind on any potential factor that could influence PSTs' TSE, the present study also includes qualitative data through the use of open-ended survey questions where participants could provide information about the reasons for their ratings on the TSE scales. The study examined TSE for a group of secondary PSTs shortly before their first professional experience placement in order to identify their reported levels of TSE and the factors which they believed had influenced these levels.

Theoretical Framework

Initially, the locus of control (Rotter, 1966) inspired research on TSE. The lack of any discrepancy between the efficacy expectation and outcome expectation and their differing roles in human being's behaviour was raised by Bandura (1977). He clarified that, despite people believing that certain behaviours can produce desired results, they still do not consider themselves as being capable of exhibiting those behaviours. Then, research on TSE (Pfitzner-Eden, Thiel, & Horsley, 2014) began to be mainly oriented by Bandura's construct of self-efficacy specifically due to the central role of self-efficacy in affecting human being's behaviour and motivation (Bandura, 1986). Self-efficacy refers to "beliefs in one's capabilities to organize and execute the course of action required to produce given attainments" (Bandura, 1997, p. 3).

Self-efficacy can influence personal behaviours. First, people incline to set up more difficult goals when they believe they have the capability required to fulfil specific tasks, while less self-efficacious individuals have a tendency to avoid the prospect of threats (Locke & Latham, 2006). Second, once persuaded of their capability, individuals tend to anticipate that certain behaviours could lead to success and that could keep them constantly pursuing fulfilment of their goals. Greater self-efficacy can therefore encourage people to devote more concerted effort and be more persistent in the face of difficulties (Zimmerman, 2000). Third, levels of self-efficacy play an essential role in individuals' daily perceptions about stress and depression (Bandura, 1995). For example, highly efficacious people are unlikely to feel desperate because of their strengthened belief in conquering difficulties.

Bandura (1995) described four sources (Mastery experiences, Vicarious experiences, Verbal persuasion, and Emotional arousal) that allow individuals to determine whether or not they believe they are capable of completing specific tasks.

Mastery experiences are the most influential source of self-efficacy. A person can raise the accuracy of self-efficacy judgement based on the previous cognition of a causal association between behaviour and results. Individuals also gain self-efficacy from vicarious experience and that requires a cognitive process of observing information about others' behaviour and results. For example, watching others complete dangerous or intimidating acts without there being any adverse outcomes can allow individuals to believe that they will also succeed if they continue in their efforts. Verbal persuasion works as an easy and widely used means of influencing a person's personal self-efficacy. People can alter their self-efficacy by listening to others whom they regard as credible in that they can be persuaded to believe that they can achieve certain goals if they exert sufficient effort. Self-efficacy based on this source is relatively easy to threaten in the face of unsuccessful results, however, especially if the encouragement is unrealistic. Physiological states or emotional arousal is another way of altering self-efficacy beliefs. "People rely partly on their state of physiological arousal in judging their anxiety and vulnerability to stress" (Bandura, 1977, p. 198). In this process, it is the personal interpretation of emotion and physical conditions rather than conditions themselves that can influence people's sense of self-efficacy.

Factors Influencing PSTs' TSE

Previous studies have investigated the influential factors of PSTs' TSE and the results can be generally divided into demographic factors and those which relate to the teacher education program. These are discussed in the following section.

Demographic Factors

Quantitative surveys are commonplace in research about TSE, and therefore demographic factors such as subjects and school levels, educational attainments, and previous experiences have been examined frequently.

Subjects and school levels. TSE is not necessarily uniform across different teaching subjects or for students of different year groups. PSTs in certain teaching subjects, such as technology, human ecology, and food, reported lower levels of TSE for class management and for instructional strategies (Klassen & Chiu, 2011). In terms of school levels, Lin and Gorrell (2001) found that early childhood PSTs held stronger beliefs than did elementary PSTs in their capability to guide difficult children and apply their professional knowledge. On the other hand, elementary teachers were also reported to have higher TSE for student engagement than did those at middle or high schools (Woodcock, 2011). However, Klassen and Durksen (2014) found that school level was not associated with TSE levels.

Educational attainment. Research about the relationship between PSTs' academic qualifications and TSE is inconclusive. For example, a teaching certificate was found to positively correlated with levels of TSE with no difference was found among PSTs with different degrees (Guo, Piasta, Justice, & Kaderavek, 2010). While TSE of PSTs from undergraduate and master's degree teacher education programs were identified to be different (Pfitzner-Eden, 2016).

Previous extracurricular experience. Previous experience beyond classroom settings may have a positive impact on levels of TSE, as suggested by Chen and Blaise (2002). For example, prior informal experience as a youth advisor or camp counsellor can have long-term beneficial outcomes in student engagement (Tuchman & Isaacs, 2011) while formal teaching experience could improve TSE for instruction. However, not all previous experience was found to support TSE. For instance, prior leadership experience for PSTs studying agricultural education did not appear to influence their levels of TSE (Wolf, Foster, & Birkenholz, 2009), with some aspects of TSE greater for those without that experience (Alrefaei, 2015).

The Role of Teacher Education Programs

Differently structured teacher education programs can have an impact on PSTs' levels of TSE, particularly with respect to coursework and professional experiences (Clift, & Brady, 2005).

Coursework. Many teacher educators (e.g., Velthuis, Fisser, & Pieters, 2014; Wheatley, 2005) have examined the influence of teacher education courses on the levels of PSTs' TSE. A skill-based health method course which combined focused content areas, skill-based education, and opportunities to teach in schools, encouraging deeper reflection and providing relevant assessment, was found to have a positive impact on PSTs' levels of TSE and their intention to teach health education (Fahlman, Hall, & Gutuskey, 2013). A holistic method course for science teaching combining workshops and school placements developed PSTs' self-efficacy for teaching science (Howitt, 2007). A similar result was also found in a science teaching methods course focused on inquiry-based science methods (Voet & De Wever, 2017). Completing focused coursework could therefore be beneficial to the growth of TSE for PSTs (O'Neill & Stephenson, 2012). However, not every course examined was found to be influential in this way. For example, completing an education for sustainability unit (Effeney & Davis, 2013) did not improve PSTs' TSE to teach the subject, without keeping the structure and design of the unit correlated well with other parts of the whole

course. Similarly, PSTs who completed a course specialised in teaching methods (Baltaoğlu, 2015) did not increase their TSE significantly due to its loose design, such as, being less integrated among different curriculum contents (Fahlman et al., 2013).

Professional experience. Different types of professional experience models have been associated with PSTs' levels of TSE, but the results are mixed because of such things as different designs of teaching practice and practice environments. For example, school-based professional experience and microteaching can increase PSTs' levels of TSE (Brown, Lee, & Collins, 2014) for certain aspects such as instructional strategies (Tuchman & Isaacs, 2011), but have also been found to decrease TSE (Plourde, 2002) or to have no impact at all (Atay, 2007). Key factors appear to include opportunities to participate in the design of professional experience activities, receiving constructive feedback, and modelling the instructors' teaching (Cinici, 2016). It has been suggested that it is the quality of teaching practice rather than simply the existence of teaching practice that could positively influence PSTs' TSE (Tuchman & Isaacs, 2011).

Different structures for professional experience, such as laboratory-based and field-based models, were also found to influence aspects of TSE at particular professional stages (Gurvitch & Metzler, 2009). In addition, professional experience is more likely to improve PSTs' confidence to teach (M. Kazempour & Sadler, 2015) when it closely connects with coursework, when there are positive relationships between PSTs and their tutors, and a supportive and cooperative atmosphere exists in the school (Kazempour, 2013). For example, collaborative mentoring practices can be a positive predicator for TSE, while practices based on showing and modelling did not bring about an equal increase in TSE (Richter et al., 2013). Thus, professional experience could be easily become effective (Malinen, Savolainen, & Xu, 2013) for TSE. However, rather than any individual aspect, it is a combination of interactive, collaborative, and organic structures (Clift & Brady, 2005) that can make professional experience have a positive impact on PSTs' levels of TSE (Howitt, 2007).

Method

Participants

Participants for the study were 90 PSTs who were preparing to be secondary school teachers (females: n=62; 69% and males: n=27; 30%), though not all PSTs included all their demographic information on the survey. They were either in their third year of a 4-year undergraduate bachelor degree (n=67; 76%) or in the first year of 2-year graduate degree (n=21; 24%) at one metropolitan university. The participants had completed units in educational psychology and sociology, classroom management, and an introductory curriculum unit for secondary teaching. They had all presented a short micro-teaching lesson in tutorial classes at the university and had received tutor and peer feedback on the lesson. Their main teaching subjects were social sciences including history, economics, and business studies (32%); English (29%); science (20%); mathematics (11%); and languages (6%). Undergraduates in the study had completed most of the content units in their teaching subjects, while the graduate-entry PSTs had already completed a bachelor degree that included discipline-related study for their teaching subjects.

Data Collection

Data for the study was collected via a survey based on the Scale for Teacher Self-Efficacy (STSE) (Pfitzner-Eden, Thiel, & Horsley, 2014), which is a recently modified version of the Teachers' Sense of Efficacy Scale (TSES, Tschannen-Moran & Hoy, 2001).

The STSE comprised 12 items, with four items relating to each of the three sub-scales: Instructional Strategies (e.g., Adjust lessons to the proper level for individual students), Classroom Management (e.g., Control disruptive behaviour in the classroom), and Student Engagement (e.g., Help students value learning). A nine-point response scale was created, from "Not at all certain can do" (1) to "Absolutely certain can do" (9). The STSE has been validated with PSTs in Germany and New Zealand across two different initial teacher education programs and provides a stable three-factor structure for beginning and advanced PSTs (Pfitzner-Eden, Thiel, & Horsley, 2014). For the present study, three questions were used to obtain demographic information (program, gender, and teaching subject) and there was an open-ended question (Please explain in as much detail as you can the main factors which influenced your responses) repeated for each of the three sub-scales.

The survey was completed in a lecture for EDTE302 (Introduction to Professional Experience in the Secondary School) which occurred about two weeks prior to the professional experience placement. The lecture was designed to provide basic information to the approximately 130 PSTs enrolled in the unit about the administrative requirements for completing the placement. Ethics approval to conduct the study was obtained from the Human Ethics Committee at the university and all PSTs who attended the lecture were asked to complete the survey. Those present for the lecture were also invited to participate in the study by signing an Information/Consent Form and returning it along with their completed survey. In accordance with the ethics requirements for the study, all PSTs were advised that they could choose whether to retain their completed survey and use it solely as a beneficial way to reflect and appraise their teaching abilities, or they could return it for research purposes. Students who returned their survey were encouraged to photograph it so they could also retain a copy if they wished.

Data Analysis

Quantitative data were explored to answer levels of TSE while qualitative data were investigated to further understanding of influential factors independently.

As to the quantitative data, the demographic information was subjected to descriptive analysis using SPSS and the means, medians, and standard deviations of each of the three subscales were computed. Finally, the mean and standard deviation of overall TSE on the STSE was calculated.

Qualitative data from the surveys were transcribed and initially coded through NVivo by applying a process of reflexive iteration (Srivastava & Hopwood, 2009). At this phase, data from each of the three subscales were separately analysed for emergent themes. Then, all common themes that had appeared in the three subscales were combined and factors influential on two or one single subscale were also recorded. In this phase, three aspects of data analysis were considered for inclusion: the demographic information; the levels of TSE; and also the themes clustered from the open-ended questions.

Results

Levels of TSE

Medians and distributions of the three subscales and the general TSE are reported in Figure 1. Classroom Management was found to have lower values in each quartile in contrast with Instructional Strategies, Student Engagement, and overall TSE. Instructional Strategies and Classroom Management have the lowest and highest interquartile range separately.

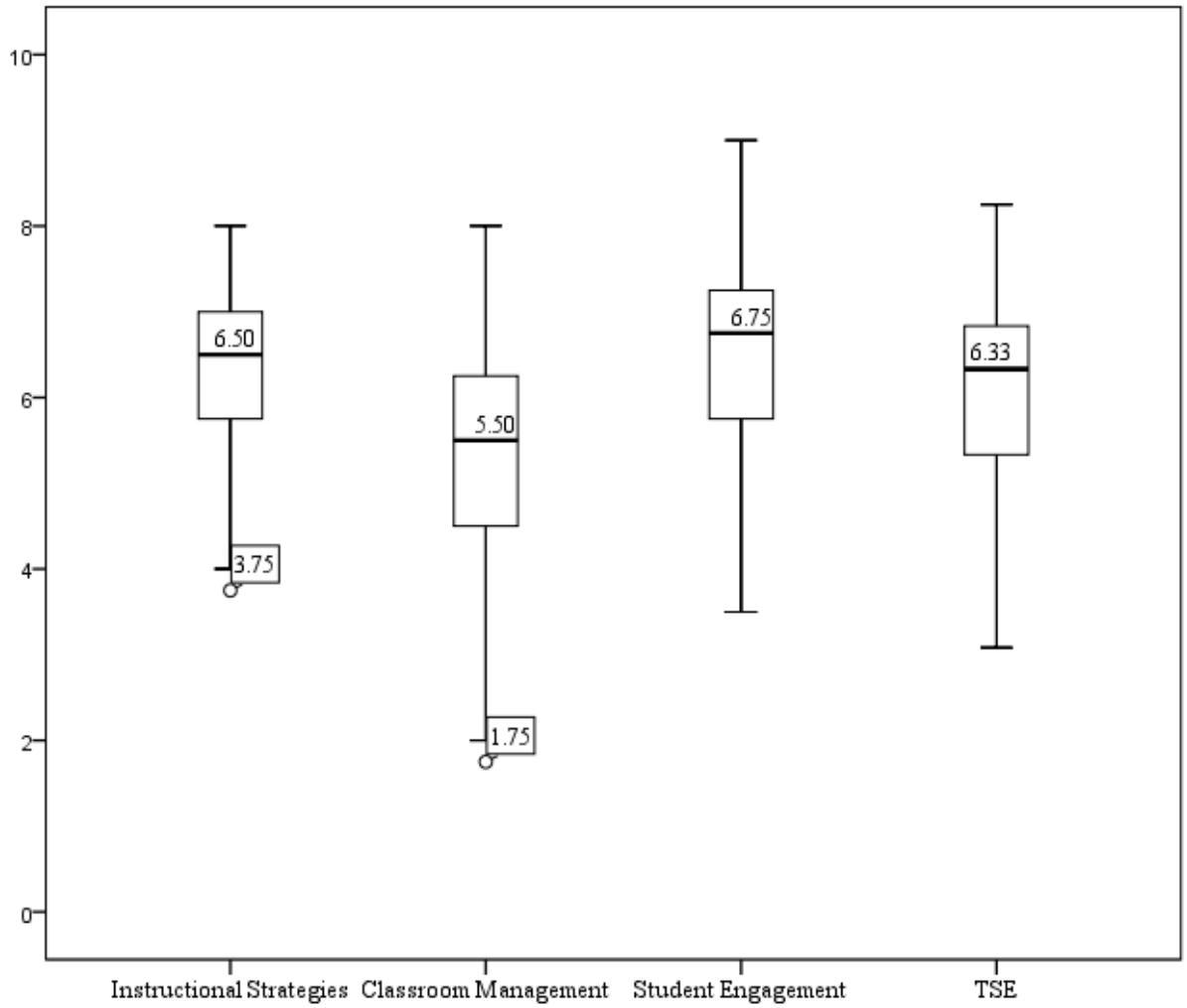

Figure 1: Distributions of Levels of Three Subscales and TSE

Means and standard deviations across the four items for each aspect and the total TSE score are shown in Table 1. A similar mean was found for Instructional Strategies and Student Engagement, while the mean for Classroom Management was lower. Classroom Management also recorded the widest standard deviation, while the lowest standard deviation was for Instructional Strategies.

Scale	N	Mean	Std deviation
Instructional Strategies	90	6.30	0.91
Classroom Management	90	5.32	1.38
Student Engagement	90	6.54	1.17
TSE	90	6.05	1.01

Table 1: levels of TSE in different subscales, and total TSE

Influential Factors on TSE of PSTs

Lack of Classroom Teaching Experience

Lack of classroom teaching experience was the most common theme mentioned by the participants in all three subscales of TSE. This is not surprising since the participants were preparing for their first professional placement and were inexperienced in formal classroom teaching, so they were "not sure what to expect". They "honestly had no idea" about whether they were "capable of doing these things [instruction] without any experience at all". Similarly, for classroom management, PSTs were also "very worried about behaviour management as I have had no experience in managing troublesome students' behaviour." Furthermore, they regarded themselves as being "naïve and thus far know nothing [about student engagement]".

Informal Teaching Experience

Even though they lacked formal classroom teaching experience, some participants had taught previously as private tutors for friends or siblings, or as leaders of staff training programs in other industries. These informal experiences were connected with all three TSE subscales by PSTs when they reflected on factors that influenced their TSE. For example, 45 participants reported that they developed their instructional skills and gained some ideas about how to explain content in a variety of ways based on differing students' learning abilities.

> *Having tutored my brother (who is in Year 7), I have practised in developing my "explaining strategies" and manifesting if he comprehended the content. Preparing challenging tasks is something that I have asked him to do.*

Some 27 participants also reflected on their experiences in managing teenagers through activities such as sports coaching and other leadership positions. For example:

> *I have experience in hockey coaching & trying to calm boisterous, talkative young girls!*

Furthermore, in the subscale for Student Engagement, 20 PSTs described how they had successfully inspired their students to value learning and achieve better academic results. The PSTs also developed some strategies to engage students with lower motivation through "making the content relevant to their interests".

> *I have been fortunate enough to work with low ability students, and have been able to improve their marks, their motivation and their outlook on education as a whole.*

Previous informal experience also provided PSTs with feedback about their teaching. Positive evaluations and feedback motivated PSTs to engage in similar tasks in their teaching practice, especially when they "have seen students improve their performance and received appreciation from parents". Specifically, positive evaluations influenced TSE in the subscale for instructional strategies, since "I have had some experience teaching ESC of a private college and was quite successful at the above". PSTs also recalled their smooth interactive experience with teenagers with whom they only "had little problems".

However, sometimes these informal teaching experiences were not successful and PSTs still felt uncertain about their forthcoming teaching practice. Previous experience may have decreased TSE for student engagement because of "the mixed results".

A similar influence was reported for classroom management. For example,

> *"Sometimes in leadership positions, it's hard for me to be authoritative and control situations".*

Personal Learning Experiences

PSTs also reflected on their own prior learning experiences, such as their individual learning styles, their own school teachers' behaviours, and their motivations to study. With regard to TSE for instructional strategies, PSTs were more likely to believe that they could apply their learning skills to teaching if they had used these during their own learning experiences.

> *As a learner I often rely on alternative or reasonable explanation in order to make meaning.*
>
> *My own learning style may be an influence to explain further/former or in a different way.*

Regarding TSE in student engagement, PSTs who regarded themselves as having been lazy, underachievers, or problematic in other ways at school felt it would be easier to understand and work with students who had similar characteristics to them.

> *I was a problematic student in high school. I feel this understanding will allow me to engage with those students of the same nature.*

PSTs also reflected on how their own school teachers taught them and felt they could possibly replicate these strategies. They noted how those teachers' ability to control their classes impacted the PSTs' TSE in classroom management. "And my own schooling saw plenty of failed attempts at classroom management." With regard to TSE for student engagement, PSTs also mentioned they had learnt some strategies from the "excellent role models who taught me these skills and made me value learning". Also, their previous experience in motivating their peers at school could also be transformed into motivating future students.

> *Mainly from personal experiences throughout my life … often motivated peers while I was SRC at school.*

During their own school time, PSTs observed "plenty of failed attempts at classroom management". Their own teachers' apparent failure in calming disruptive behaviours may have lowered their TSE in this subscale. As one participant wrote:

> *Behaviour management in classroom is something I am not confident about, possibly due to my experiences in high school myself. Some teachers gave up teaching the lessons…*

The Teacher Education Program

University studies were generally mentioned as positive influences on all aspects of TSE, especially in instructional strategies and classroom management with 55 and 33 participants separately. One participant wrote,

> *I have been provided with extensive guidance from lectures & tutors on an array of situations & experiences that can occur in the classroom & how best to overcome them.*

Generally speaking, for instructional strategies, PSTs agreed that their university studies equipped them with "knowledge of how to approach a classroom environment & deal with the above scenarios". Similarly, when they thought about classroom management, they also thought they were "aware of the different strategies and approaches that can be used" because of units they had studied in their degrees. Furthermore, for student engagement, PSTs also asserted that the skills "emphasised in pre-service teacher training at university" could "allow me to motivate and enthuse students".

Having studied the content of their teaching subjects at university was also mentioned as especially influential on instructional strategies and student engagement. Their

understanding of their own subject knowledge seemed to increase their TSE for instructional strategies as "allows me to explain concepts/terms in a variety of ways". Regards to PSTs' confidence to engage students, they feel like that "have quite a bit of knowledge about my subject area which will hopefully help to motivate students".

"Experience in micro-teaching" and "practice/prior experience from university classes" such as lesson plan writing and assessment, in university classroom were the only two practical factors of teacher education program that were regarded as essential for instructional strategies, but only 8 PSTs mentioned those things. Then, a feeling of "insecurity" may have decreased their TSE, even when some PSTs believed they had "book-knowledge about techniques" and "in theory, I believe I can do the above". But "in practice I'm not sure that's true yet." The disconnection between theory and practice was most obvious in classroom management as PSTs believed that "behaviour management is easy to learn however hard to implement" and they had "no experience controlling a class only theoretical knowledge".

Personal Qualities and Characteristics

Another common phenomenon existing across all subscales of TSE related to the personal qualities of individual PSTs. Even when they clearly noted the challenges of teaching, some PSTs thought that "this will be good to learn", and they were "keen to try" and "be open minded to take the advice of my supervising teacher for improvements". They intended to "think of any future challenges as a learning opportunity and perfection of practice".

In contrast, some participants were more likely to regard the practicum as a "risk of unknown".

> *I'm confident in myself but … unsettling feelings that will inevitably come, I can't be certain*.

For TSE in instructional strategies, 29 PSTs analysed their personal styles in dealing with difficulties. Two ideas were mentioned most frequently: thinking twice before acting, and to "have a backup plan if things do not go to plan". These habits allow PSTs to prepare alternative solutions for possible challenging questions from students so that they might feel less nervous.

Another personal characteristic mentioned by PSTs across all three subscales was being a talkative person; for example, in instructional strategies, by giving alternative answers.

> *And am often guilty of explaining concepts to friends when they didn't ask for it, so I don't worry too much about high-level students' alternative explanations*.

Likewise, in student engagement, 26 PSTs believed they "can properly utilise my social skills to be able to motivate students to love science!!" Regarding TSE in classroom management, being "assertive", "outspoken", and "impressive" were identified by PSTs as beneficial. On the other hand, in contrast with PSTs who possessed "a good, loud voice", PSTs who regarded themselves as being "soft", "reserve[d]", and "less outspoken", reported they were anxious about managing student behaviour. As one PST wrote "It is mainly because of my personality. I am not an assertive person". These features seem to be closely connected with being more authoritative.

> *I am conscious that students will not see me as a viable authoritative figure yet and therefore may not respect me; I am also a soft person by nature*.

PSTs who regarded themselves as "altruistic", "supportive", "enthusiastic", or "bubbly" in nature were inclined to have a higher TSE in student engagement. Personal

characteristics were also highlighted, particularly for the TSE Classroom Management subscale. These characteristics often related to the need to present an authoritative personal image in the classroom. For instance, calming disruptive behaviour "can be difficult based on personal stance and appearance to students". Some PSTs perceived disadvantages in certain characteristics such as height, appearance, and gender.

> *I am afraid that because I am young and also short … students may take advantage of this.*
>
> *I am short, and do not have an imposing demeanour; I am female.*

The Teacher-Student Relationship

PSTs also rated some aspects of TSE based on their own understanding about the importance of building good relationships and rapport with students. In classroom management, 19 PSTs advocated more patience and time for students to establish a good relationship with them. Participants described their belief that "if I am approachable and respectful, students will also be more respectful". Thus, they believed that "even the most difficult student can be 'fixed' in ways that suit them." They also believed that students often became disruptive when they were bored in the lesson or because they were inappropriately seeking the teacher's attention.

> *I believe that most students who are disruptive are often bored. Remembering that students are humans and not beneath you, a lot of the times students just want/need to be listened to.*

With regard to student engagement, 21 PSTs mentioned encouraging students to appreciate study by "creating relevant content for them and showing that there is value and meaning in what they are learning". PSTs anticipated how they might motivate students to value learning and cultivate learning interests.

> *It is important to make learning valuable and meaningful for students in order to build a love and appreciate [sic] for learning.*

In PSTs' perceptions, a teacher's personal behaviour could also be effective in the teacher-student relationship. They asserted that teachers could become students' role models and could guide students to follow their behaviours, for example, if a teacher is "very passionate about my subject and I feel this will be useful in helping other students learn and love learning". Thus, a PST could be assured that "I myself have a deep appreciation for learning science and I believe this appreciation is tangible to students and will hopefully inspire/motivate them".

Discussion

Two aspects of the research findings are discussed separately according to the two research questions, with a further discussion on the key influential factors of PSTs' TSE.

Levels of TSE

The overall level of participants' TSE is slightly above 6.0 on the 9-point scale. Although being completed before PSTs' first professional experience placement, the level of general TSE was just higher than the mid-point of 5.0 and relatively lower than in comparable previous research with PSTs (Pendergast, Garvis, & Keogh, 2011; Pfitzner-Eden, 2016). Therefore, in the present study the commonly reported "unrealistic optimism"

(Weinstein, 1988) was not evident in the quantitative data. This high expectation of TSE was usually interpreted as being inflated after the theoretical preparation during a teacher education program (Winters, 2012). There are two possible reasons for this outcome in the present study. First, many PSTs had gained a variety of informal teaching experiences such as private tutoring and sports coaching. This type of experience might be helpful to form a realistic self-evaluation of TSE. This is because the prior experiences may have caused the PSTs to think about the challenges of classroom teaching and led to a lower expectation of what they could accomplish in teaching (Lin & Gorrell, 2001). Second, at the time point of the survey, PSTs were concerned about the upcoming practicum so it is perhaps understandable that many of them reported feeling anxious about teaching. According to Bandura (1977), emotional arousal is an important source from which humans judge their abilities to successfully perform a task. Positive emotional arousal can enhance a person's intentions to pursue success, while negative arousal may increase the possibility of avoidance.

The TSE subscales were Instructional Strategies, Classroom Management, and Student Engagement. The relatively low level of TSE for classroom management is consistent with an international concern about PSTs' lack of preparedness for controlling a whole class (O'Neill & Stephenson, 2012). PSTs perceive that managing student behaviour is the most challenging task in teaching (Wolf, Foster, & Birkenholz, 2009;). This phenomenon can even transfer into recently graduated teachers among whom a negative association has been found between teaching experiences in classroom management and TSE (Wolters & Daugherty, 2007).

Factors Influencing TSE of PSTS before First Professional Experience

According to the mechanisms underlying efficacy information acquisition, four key information sources of self-efficacy were proposed by Bandura (1977): mastery experiences, vicarious experience, social persuasion, and emotional arousal. In the current research, factors influencing PSTs' TSE are now discussed in terms of these four types of sources.

Mastery Experiences

In this present study, the most commonly cited factor influencing PSTs' TSE related to experience, particularly their lack of formal classroom teaching experience. Lack of formal teaching experience was regarded as limiting PSTs' TSE and it left them without any information to draw on when rating their TSE before their first professional placement. This result confirms that mastery experience is the most powerful source for establishing an accurate self-efficacy as it can provide people with the most informative knowledge about what they need to complete to achieve a task (Bandura, 1995). This phenomenon seems to be clearer when PSTs feel less certain after comparing their theoretical knowledge in all three subscales with "little experience". Previous research has also confirmed that PSTs cannot do well in correctly assessing TSE (Chesnut & Burley, 2015), particularly when attempting to discriminate between the underlying TSE subscales (Duffin, French, & Patrick, 2012).

Furthermore, previous informal practice in teaching was mainly perceived as helpful. PSTs agreed that informal teaching provided them with opportunities to get in touch with children and practise teaching skills, especially explaining core concepts, providing alternative interpretations, and assisting students to appreciate study. Informal teaching experience that has a strong connection with specific teaching situations appears to strengthen

the impact of personal experience on TSE (Martinussen, Ferrari, Aitken, & Willows, 2015). This is also consistent with the generality feature of self-efficacy raised by Bandura (1977) which means self-efficacy is more likely to be transformed into other situations that share closer similarities with the previous experience.

Vicarious Experience

Both positive and negative vicarious experiences were reported in this current study. Initially, 6 PSTs recalled the role of an "apprenticeship of observation" (Lortie, 1975). In their comments on the survey, PSTs wrote that the success of their former teachers in teaching students had positively influenced their own TSE in applying these skills if confronting similar challenges in the future. For example, after recalling their own school teachers' success in managing disruptive students or engaging unmotivated students (including themselves), PSTs enhanced their TSE as they considered themselves capable of replicating those successes. This result also confirms the previous finding (Senler, 2016) that role models can develop PSTs' positive attitudes toward teaching and motivate them to persist longer in the face of difficulties.

While their school teachers' failures in maintaining discipline in the classroom were also mentioned, and these PSTs reported that such experiences lessened their TSE for classroom management. According to Bandura (1977), vicarious experience could enhance individuals' self-efficacy by observing other comparable successes after experiencing hardship. On the other hand, people's self-efficacy might be reduced if they witness others' failures, especially if those people were considered to be more capable than the observers. In the present study, PSTs noted that observing the failure of teacher role models decreased their motivation to persevere with teaching. This phenomenon is consistent with the view that PSTs' TSE may decrease after they witness an unsuccessful performance by one of their role models (Woolfolk Hoy & Burke-Spero, 2005). A negative influence from role models was also reported by Mulholland and Wallace (2001), who found that a lack of positive guidance from role models might be limiting for both PSTs' and graduate teachers' TSE.

Social Persuasion and Emotional Arousal

Social feedback plays an essential role in self-efficacy, both positively and negatively. For example, positive appraisal from a trustworthy person could be beneficial for enhancing one's self-efficacy. In the present study, PSTs mentioned the positive effect on their TSE due to appraisal received from students' parents, university teachers, and friends, and also the improvement in students' academic performance, including their grades and motivation to learn. PSTs also perceived that the positive social appraisal of their communication skills enhanced their TSE in all of the three subscales as reported in the study conducted by Poulou (2007). Furthermore, PSTs recalled the unsatisfying results in managing teenagers' behaviours and when they assumed leadership positions and experienced difficulty managing their teams as being detrimental to their TSE for managing students. This consists with the previous findings that different kinds of feedback might be the factor determining why not all previous teaching experiences improved TSE (Guo, Justice, Sawyer, & Tompkins, 2011).

Among the eight PSTs who mentioned microteaching as beneficial, most did not discuss the actual teaching itself. Instead, they emphasised and valued the positive feedback from their tutors. So it was the positive effect of the feedback and not the experience itself that most influenced their TSE. This is consistent with the findings of Al-Awidi and Alghazo

(2012) who emphasised the value of combining teaching practice with feedback, particularly positive feedback (Brouwers & Tomic, 2000), from experienced school teachers, peers, or university tutors to develop PSTs' TSE. Professional development training without follow-up coaching did not tend to improve teachers' TSE because it lacked opportunities for teachers to receive feedback and assistance (Megan Tschannen-Moran & McMaster, 2009).

In the current study, feeling nervous and stressed was mentioned very commonly in association with the other three sources of TSE. PSTs mentioned feeling anxious, especially when they acknowledged that they were soon to commence their "risky" first formal professional practicum. Similarly, when PSTs considered the failures of their school teachers and themselves, they were more likely to feel nervous. Again, the time when the survey was carried out, namely in a lecture intended to prepare them for their first teaching practice, played an essential role in exacerbating these nervous feelings. This might be one reason why PSTs in the present study rated their TSE relatively low.

Conclusion

This study examined TSE for a group of secondary PSTs shortly before their first professional experience placement in order to identify their reported levels of TSE and the factors which they believed had influenced these levels. Based on the findings of this study, several implications can be drawn to improve initial teacher education programs. First, it is important that those programs link theory to practical activities such as observing classroom teaching (in person and via video) and participating in microteaching or making student presentations. In the present study, a lack of integration between the theoretical courses studied in university and the practical activities in schools was a common reason why PSTs felt nervous about their first placement, despite regarding themselves as competent in terms of their content knowledge.

Second, positive orientations to engage in challenging situations are essential for human beings to persist in activities they find difficult. Some participants in this study acknowledged that the forthcoming professional experience would be very challenging for them. However, they also reported their willingness to experience the potential challenges in their teaching practice. Hence, cultivating PSTs' positive intentions toward challenges could also be beneficial; it can help them remain resilient in unfamiliar or daunting teaching situations.

Third, PSTs considered their "authoritative appearance" when they discussed influential factors related to TSE in the Classroom Management subscale. This focus on being authoritative in classroom management could indicate the doubts raised by Wheatley (2005) which addressed the potential problem in applying TSE into democratic teaching. He described "the majority of scales do not explicitly reflect the goals and methods of democratic teaching" (p. 752) as they mainly focus on teachers' direct personal control over students, especially in classroom management. Thus, teacher educators might need to consider how they can support PSTs to understand classroom management in a more democratic manner.

The results of this study need to be considered in light of its limitations. The STSE was administered only once to participants from a single university so it was not possible to identify any developing trend of TSE before and after PSTs' first teaching practice. Also, the survey was administered about two weeks before the start of the professional experience placement and PSTs' TSE might have changed from then because of the intensive preparation that took place subsequently. There were some difficulties in the data analysis because sometimes in the open response questions, PSTs identified a factor without

explaining its impact on their TSE. Finally, many similarities were found in the survey responses for the subscales for Instructional Strategies and Student Engagement. It appears that the participants could not discriminate between these two subscales so a confirmatory factor analysis might have helped to confirm whether the STSE subscales were operating as intended in this study.

Given these limitations, future research could include a more integrated research design including qualitative methods, such as interviews and observation to gather more details about the impact of PSTs' TSE. Also, longitudinal research studies would be beneficial since TSE is not stable at different professional development stages (Klassen & Chiu, 2010). Future research could also include participants from a broader range of PSTs at different stages in their initial teacher education programs.

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