An exploration of the sources of teaching self-efficacy among a sample of early career teachers.

Amy Van Arkkels

Bachelor of Education (University of Sydney)

Master of Education with Merit (University of Sydney)

Master of Education (Griffith University)

Submitted in fulfilment of the requirements for the Degree of Master of Research

Faculty of Human Sciences

Department of Education

Macquarie University

Submitted 15th December 2017

Supervisors: Dr Anne McMaugh and Dr Norman McCulla

CONTENTS

Contents 3

List of Tables 5

Summary 6

Statement of Candidate 7

Acknowledgements 8

Chapter 1 – Introduction 9

Chapter 2 - Literature Review 11

- Self-Efficacy Theory 11
- Teacher Self-Efficacy 12
- Measuring Self-Efficacy 14
- Early Career Teachers' Self-Efficacy 15
- Sources of Teacher Self-Efficacy 17
- Measuring Sources of Teacher Self-Efficacy 19
- Sources of Early Career Teachers' Self-Efficacy 20
- Professional School Climate As A Source of Efficacy Information for Early Career Teachers 21
- Summary 23
- Focus of Study 24
- Research Questions 24

Chapter 3 – Methodology 25

- Research Design 25
- Participants 25
- Measures 27
- Procedure 31

Chapter 4 – Results 32

Self Efficacy of Early Career Teachers 32

The Sources of Self-Efficacy 33

Chapter 5 – Discussion 48

Self-Efficacy of Early Career Teachers 48

The Sources of Self-Efficacy of Early Career Teachers 49

Implications 51

Limitations and Future Research 52

Conclusion 53

References 55

Appendices 62

List of Tables

Table 1: Demographic characteristics of participants (N= 40) **26**

Table 2: Demographic characteristics of interview participants (n=7) **27**

Table 3: Self-efficacy of early career teachers (n = 40). **32**

Table 4: Self-efficacy in the context of specific lesson planning and delivery (n=25) **33**

Table 5: Summary of sources of self-efficacy **34**

Table 6: Number of references to each source of self-efficacy within the reflections for participants with high and low self-efficacy. **35**

Table 7: Interview participants (n=7) and scores from TSES **39**

Table 8: Teaching experience of interview participants with high and low self-efficacy **39**

Table 9: Number of references to each source of self-efficacy within the interviews for participants with high and low self-efficacy. **40**

Table 10: Sources of self-efficacy reflecting the professional school climate from interviews with early career teachers (n=7). **40**

Summary

In comparison with more experienced teachers, early career teachers report significantly lower levels of self-efficacy. Although the early years of teaching are a critical time for developing teacher self-efficacy, little is known about the sources of early career teacher self-efficacy judgements. Early career teachers (N=40) completed an online questionnaire assessing their self-efficacy. A smaller group (n=25) completed a reflective item which recorded the sources of their self-efficacy beliefs in the context of specific lessons they planned to deliver. Semi-structured interviews with early career teachers reporting low self-efficacy (n=3) and high self-efficacy, (n=4) probed the sources of self-efficacy in relation to the day to day experiences of early-career teaching. Consistent with the literature, participants reported lower teacher self-efficacy than the mean established by Tschannen-Moran and Woolfolk Hoy (2001). The main sources of their self-efficacy were relationships with students, perceptions of student engagement, and feedback and advice received from colleagues. The role of mastery and social persuasions as sources of early career teacher self-efficacy is discussed. Implications for the positive development of early career teacher self-efficacy are discussed.

Statement of Candidate

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself. All information sources and literature have been referenced in the thesis.

The research presented in the thesis was approved by Macquarie University Ethics Review Committee.

Ethics reference number - 5201600868

Ethics date of approval - 29.3.17

(Signed)_____ Date: 14th December 2017

Amy Van Arkkels

Student ID: 44716389

Acknowledgements

I would like to acknowledge and thank the early career teachers who participated in this study.

I would also like to express my heartfelt thanks to my supervisors, Dr Anne McMaugh and Dr Norman McCulla, who provided ongoing support, encouragement and guidance.

Finally, I would like to thank my wonderful husband, Dave, and my children Matilda and Colton, for their unwavering patience, love and support.

CHAPTER 1

Introduction

The challenges of early career teachers are well documented (Ewing & Smith, 2003; Ewing & Manuel, 2005, Buchanan et al., 2013; Schuck et al., 2017) and are similar across international contexts (OECD, 2005). In the first years of their careers, teachers report feeling challenged by a sense of isolation, idealistic perceptions and a struggle to establish a professional identity (Hay Group, 2014; Schuck et al., 2012). In comparison with more experienced teachers, early career teachers report significantly lower levels of self-efficacy (Jensen, Sandoval-Hernandez, Knoll & Gonzalez, 2012). While it may seem quite normal for teachers with less experience to have lower levels of belief in their ability, these lower levels of teacher self-efficacy can be costly to the individual, the school community and the education system.

In their extensive review of 40 years of teacher self-efficacy research, Zee and Koomen (2016) noted that teachers with lower levels of self-efficacy "seem to experience higher levels of emotional exhaustion and lower levels of satisfaction and commitment, ultimately leading them to quit their job" (p.27). This is of concern considering it has been suggested that up to 30% of Australian teachers leave their careers within the first five years (OECD, 2005). Even when early career teachers do not leave the profession, the effects of feeling less efficacious during the first few years of a career have been reported to have consequences for teacher wellbeing and students' academic outcomes (Zee & Koomen, 2016).

Teachers with higher levels of self-efficacy are less likely to experience stress and overall burnout, and experience greater job satisfaction and higher levels of personal accomplishment (Skaalvik & Skaalvik, 2010; Zee & Koomen, 2016). Although teacher self-efficacy has been modestly associated with students' overall academic achievement, it does have a strong association with student motivation, school satisfaction and confidence (Zee & Koomen, 2016). It is suggested that a systemic focus on the self-efficacy of early career teachers may improve classroom experiences for these teachers and their students as well as promote the retention of new teachers in the profession (OECD, 2012).

Given the established impact of teacher self-efficacy within the learning environment, researchers have turned their attention toward understanding the sources which contribute to these beliefs (Aydin, Demirdogen & Tarkin, 2012; Hastings, 2012; Morris, Usher, & Chen 2016; Palmer, 2011; Phan & Locke, 2015; Tschannen Moran & Woolfolk Hoy, 2007). This research on the sources of teacher self-efficacy is important because it has the most direct implications for teacher education, professional learning and development (Morris et al., 2016). As noted by Pajares (1997) policy makers and educational leaders may be more interested in the pragmatic application of these findings in the forms of intervention strategies and practical ways to alter teachers' self-efficacy beliefs.

While research has indicated that self-efficacy declines in the first year of teaching (Woolfolk Hoy & Burke Spero, 2005) very few studies have examined the sources of these self-efficacy beliefs for early career teachers. In their review of eighty-two empirical studies investigating the sources of teacher self efficacy between 1977 and 2015, Morris et al. (2016) found the majority of these studies focused on pre-service teachers whilst only three examined the sources of early career teachers' self-efficacy. It is clear that more research is needed on the sources of efficacy beliefs (Labone, 2004) and it has been suggested that understanding the sources of early career teacher self-efficacy may provide avenues for the tailored support of this group of teachers (Morris et al., 2016).

Despite evidence of lower levels of self-efficacy in the early years of teaching and the established links between low self-efficacy and teacher attrition, there is a dearth of research investigating the sources of self-efficacy information for this specific group of teachers. This project addresses this gap in the expansive field of teacher self-efficacy research by exploring the sources of self-efficacy beliefs of a group of early career teachers. It is anticipated that this research will contribute to a greater understanding of how to best support early career teachers in this critical stage of their career.

CHAPTER 2

Literature Review

In order to explore the sources of self-efficacy for early career teachers, it is essential to firstly understand Bandura's theory of self-efficacy. Therefore, this literature review commences with a brief introduction to this theory before moving to the more specific research on teacher self-efficacy. The limitations of the ways in which teachers' self-efficacy has been researched, historically, are also identified. This is followed by an examination of the research on early career teacher self-efficacy.

The review will then turn to the research examining the sources of teacher self-efficacy and the more recent progress made in this area. Again, it is necessary to examine the ways in which the sources of self-efficacy have been conceptualised and measured. Finally, an examination of the quite limited research regarding the sources of early career teacher self-efficacy situates/ supports the aims the current study.

Self-Efficacy Theory

Situated within social cognitive theory, Albert Bandura (1986) asserted that humans function within a model of triadic reciprocality, meaning that behaviour, cognitive and environmental factors operate as interacting determinants of each other. Self-efficacy beliefs are an example of a cognitive factor that influences human behaviour as these cognitive beliefs help individuals decide which course of action they should pursue and whether to persist when faced with adversity. These cognitive beliefs determine how a person interprets their thoughts, actions and emotions in varying situations. One's behavioural responses, thought patterns, emotional reactions and the degree to which one persists with a task, are all influenced by self-efficacy (Bandura, 1986). Self-efficacy is essential to human agency as it is defined as a judgement of one's capability to organise and execute courses of action required to accomplish designated types of performances (Bandura, 1986). Essential to this definition, is that self-efficacy is a judgement of what one *can do*, for example, whether or not you *can* complete the task ahead of you. Self-efficacy beliefs are task and context specific (Bandura, 1986).

People form their self-efficacy beliefs though their personal experiences and, importantly, through their interpretations of these experiences. In particular, Bandura (1986,) proposes that four main sources inform our self-efficacy: enactive mastery, vicarious experience, verbal persuasion and physiological state. The most powerful source of self-efficacy is enactive mastery (Bandura, 1986). This refers to efficacy information gained from an individual's performance on a particular task as this provides authentic evidence of one's performance in a given situation A second source, vicarious experience or modelling, refers to efficacy information gained from observing others complete comparable activities. This source can be particularly powerful when the individual observes someone similar to themselves succeed in a particular task through sustained effort, however, this source of efficacy can be detrimental if the observed individual fails despite the level of effort. A third source, verbal persuasion, refers to self-efficacy information gained from positive talk about an individual's capability to perform a particular task. This positive talk can include feedback on one's work or accomplishments. It is challenging to instil high levels of self-efficacy through verbal persuasion alone. When individuals are persuaded that they do not have the capabilities to perform a task this can lower their self-efficacy resulting in a tendency to avoid challenging activities or give up quickly. The fourth source of self-efficacy information are physiological or affective states (Bandura 1986). These sources include physical states and sensations in the body such as anxiety, butterflies in the stomach or strong emotional reaction when faced with certain stressors such as exams. As noted by Bandura (1986), information conveyed through these four sources only becomes instructive through cognitive appraisal, which means the individual processes of selection, weighing and integration into self-efficacy judgements.

Teacher Self-Efficacy

Teachers' self-efficacy beliefs refer to the beliefs held by teachers regarding their capabilities to carry out professional tasks. Building on the seminal work of Bandura (1977), researchers have documented substantial evidence regarding the positive effects of teacher self-efficacy within the classroom. Teachers with high self-efficacy expect to succeed in teaching and to manage students well, and this influences their interpretation of success, the standards they set and their approaches to coping with difficult instructional situations. Strong self-efficacy

beliefs can prevent stress and burnout, and teachers' self-efficacy beliefs and their job satisfaction are linked to instructional practices and student achievement (Ashton & Webb, 1986). However, due to issues of construct validity raised by Bandura (1997), questions have been raised regarding the relevance of the pre-1997 research which seemingly investigated teacher self-efficacy beliefs (Tschannen-Moran & Woolfolk Hoy, 2001; Wyatt, 2014). Specifically, Bandura asserted that much of this research failed to accurately conceptualise and measure self-efficacy and Wyatt (2014) cautioned against the citation of this earlier research by contemporary researchers who are aligned with Bandura's theory.

With the growing body of evidence demonstrating the effects of teachers' self-efficacy in the teaching and learning environment, large scale international studies including the *Teaching and Learning International Survey* (TALIS), 2008 and TALIS, 2013 (OECD 2009, OECD, 2014) have increased the focus on this construct. Notably, within the publication of TALIS 2013, (OECD, 2014) an entire chapter was dedicated to the relationship between teacher self-efficacy and teachers' experiences in school. It was reported that increased engagement in professional collaboration, including team teaching, peer lesson observation and collaborative professional learning experiences, are associated with higher levels of self-efficacy for teachers. In contrast, teachers who spent more time managing classroom behaviour reported lower levels of self-efficacy (OECD, 2014). Additionally, in all countries, when teachers reported more positive relationships with students and collaborative relationships with other teachers, they reported significantly higher levels of self-efficacy, (OECD, 2014).

Zee and Koomen (2016) recently published a criteria-based review of the research literature, analysing and synthesising 165 research articles. The authors adopted a heuristic model which presented the consequences of teacher self-efficacy in the three domains of quality of classroom processes, students' academic adjustment and teachers' well-being. Though the imposed criteria limited the synthesis to quantitative studies, the results clearly presented the positive effects of high teacher self-efficacy within the teaching and learning environment. In the domain of classroom processes, the review found that teachers with high self-efficacy use more student-centred, constructivist approaches to instruction; differentiate more frequently; are more likely to use skills and knowledge learnt during

professional learning; are more positive towards inclusive education and sociocultural diversity, and employ more proactive behavioural management strategies. Interestingly, in the domain of students' academic adjustment, Zee and Koomen (2016) reported that teacher self-efficacy is only modestly associated with students' overall achievement. However, students' motivation across all learning stages may be more consistently predicted by their teacher's self-efficacy. This review did not examine self-efficacy at different stages of a teaching career rather the results are discussed with reference to either pre-service or in-service teachers only. Nonetheless, the implications are clear that strong teacher self-efficacy supports effective classroom practices.

Measuring Self-Efficacy

Typically, self-efficacy has been measured through self-report surveys (Wheatley, 2005) and due to the extensive number of self-efficacy scales developed and used in research, Bandura (2006) has provided guidance on the measurement of self-efficacy, specifically regarding the response scale, phrasing of the statements or questions, and the specificity of the task. In regards to the response scale, Bandura (2006) recommends a 100-point scale, ranging in 10-unit intervals, including 0 (Cannot do); 50 (Moderately certain can do) and 100 (Highly certain can do). Alternatively, single unit intervals from 1 to 10 are also acceptable. The reasoning for the 10-unit scale is attributed to the sensitivity and reliability of the scale. Bandura (2006) suggests that people usually avoid extreme positions, so a scale with 5-unit intervals would lose differentiating information.

In reference to content validity, Bandura (2006) recommended that efficacy items accurately reflect the construct; self-efficacy is a judgement of capability, not intention, therefore items should be phrased with the words *can do* and not *will do.* Finally, the specificity of the tasks detailed within each efficacy item must be tailored to activities relevant within the activity domain. Pajares (1996) cautioned that self-efficacy items must specify the actual criterial task on which people are compared. Self-efficacy items which are broad and general do not indicate the context or situation in which the task is being performed. Hence, specific measures of teacher self-efficacy have been developed to reflect different tasks.

What has emerged is a history of teacher self-efficacy research dominated by quantitative methodologies (Labone, 2004), and Wheatley (2005) noted that teacher observations and

interviews were extremely rare. However, Wyatt (2014) has noted the 'recent positive development' in research about teacher self-efficacy beliefs referring to the emergence of mixed methods studies that include a meaningful qualitative component. Referencing two key studies, Siwatu (2007) and Aydin, Demirdogen and Tarkin (2012), Wyatt (2014) notes the potential of a mixed methodology study of teaching self-efficacy to lead to useful outcomes for practitioners and teacher educators. Both studies used a typical quantitative self-report survey, followed by a qualitative stage including the use of semi-structured interviews. Wyatt (2014) argued that "quantitative data-gathering through the use of carefully constructed surveys can be a useful first stage in mixed methods study. In-depth qualitative data are also required, though, to provide the insights that can make research into TSE beliefs of real use to teacher educators" (p.185).

Early Career Teachers' Self-Efficacy

Questions have been raised regarding the relationship between teacher experience and self-efficacy, whether or not self-efficacy continues to grow with years of teaching experience and if it is indeed malleable (George, Richardson & Dorman, 2015). Tschannen-Moran and Woolfolk Hoy (2007) surveyed 255 teachers who had from 1 – 29 years of experience, across all learning stages (K-12). Using the *Teachers Sense of Efficacy Scale* (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001), they found that 'novice teachers' (3 or fewer years of experience) reported significantly lower overall self-efficacy, of 6.87 when compared with 'career teachers' whom they define as having 4 or more years of experience, who had an overall self-efficacy of 7.29 on a 9 point scale. Additionally, when looking at the subscale, Instructional Strategies, novice teachers reported a self-efficacy of 6.99 compared with experienced teachers, 7.58, and in the subscale of classroom management, novice teachers scored 7.03 compared with more experienced teachers 7.61. On the third subscale of student engagement there was no significant difference between the two groups (Tschannen-Moran & Woolfolk Hoy, 2007). These findings were reported as consistent with Bandura's theory of the development of self-efficacy (1977) which suggests that self-efficacy is formulated and shaped in early learning experiences. However, Tschannen-Moran and Woolfolk Hoy also referred to the attrition rates of early career teachers, noting the possibility that novice teachers with lower self-efficacy may have left the profession.

Similarly, Wolters & Daugherty (2007) surveyed 1024 teachers from all stages of learning (K-12) and found a positive relationship between years of experience and teacher self-efficacy across all three domains of the TSES (Tschannen-Moran & Woolfolk Hoy, 2001). Participants, (N=1024) were divided into four groups reflective of their years of experience: 1st year of teaching, 1-5 years, 6-10 years and 11+ years of experience. Similar to Tschannen-Moran and Woolfolk Hoy (2007), Wolters & Daugherty (2007) acknowledged possible explanations for the difference in self-efficacy between the four groups. Specifically, the attrition of less efficacious teachers within the early years of the profession and the confidence gained through accumulating years of experience.

Klassen & Chiu (2010) also utilised the TSES, to survey teachers (N=1430); however, they assessed years of teaching as a continuous variable. The researchers found that for all three domains of the TSES, teacher self-efficacy steadily increased between 0 – 23 years of teaching experience, but then declined over the remaining years in the profession between 23 – 44 years. The authors suggested that these results reflected the professional life cycle of teachers, suggesting a period of survival and discovery in the early years in contrast with a period of declining motivation after 24 years (Klassen & Chiu, 2010). In both studies, teachers at all career stages reported higher levels of self-efficacy in the domains of instruction and management than the domain of engagement which aligns with the earlier findings of Tscahannen-Moran & Woolfolk Hoy (2007).

It is clear that teachers in the first five years of their career have lower levels of teacher self-efficacy than their more experienced colleagues (Tschannen-Moran & Woolfolk Hoy, 2007; Wolters & Dougherty, 2007; Klassen & Chiu, 2010; OECD, 2014). Furthermore, self-efficacy is regarded as most malleable early in a teacher's career (Chacon, 2005; Chan, 2008; Mulholland & Wallace, 2001; Tschannen-Moran & Woolfolk Hoy, 2007; Woolfolk Hoy & Burke Spero, 2005). Thus, the first years of teaching are regarded as critical to the long-term development of teacher self-efficacy and teacher practice (Woolfolk Hoy & Burke Spero, 2005; Hay Group, 2014). For the purposes of this study the term early career teachers will refer to teachers in the first five years of their career, a standard commonly used in Australian research (Manuel, 2003; Mayer, et al., 2015; McKenzie et al., 2008; McKenzie et al., 2011).

Although the early years of teaching are a critical time for developing teacher self-efficacy, few studies have looked at the development of teachers' self-efficacy over this specific period of their career (George et al., 2015). Woolfolk Hoy & Burke Spero (2005) found that participants' self-efficacy rose significantly during the final year of teacher preparation, and then fell in the first year of teaching. It was concluded that support in the first years of teaching might be critical to the development of teacher self-efficacy. The researchers called for future research to, *"identify characteristics of the schools that might affect the development of beginning teachers' beliefs … What structural features and supports make a difference in the formation of efficacy beliefs?" (*Woolfolk Hoy & Burke Spero, 2005, p. 354). This supports the call for teacher self-efficacy researchers to consider the sources of efficacy information (Henson, 2002; Klassen, Tze, Betts, & Gordon, 2011; Labone, 2004; Morris et al., 2016).

Sources of Teacher Self-Efficacy

Teacher self-efficacy research to date has provided important findings regarding the influence of teacher self-efficacy within the learning environment and changes to self-efficacy in relation to years of experience. However, less is known about *how* teacher self-efficacy beliefs are developed (Tschannen-Moran, Woolfolk Hoy & Hoy, 1998; Tschannen-Moran & Woolfolk Hoy, 2007; Wyatt, 2014). Bandura argued that to enhance self-efficacy it is necessary to use information about the sources of self-efficacy. This research has the most direct implications for teacher education, professional learning and development (Morris et al., 2016).

In a significant review of research conducted in the previous twelve years, Klassen et al. (2011) concluded that insufficient attention has been paid to these sources of teacher self-efficacy. Specifically, they concluded that little is known about how the sources of self-efficacy operate in practice and noted a lack of reliable measures of these sources of efficacy beliefs for teachers. Earlier, Labone (2004) stated that understanding the sources and the development of teacher self-efficacy requires increased use of qualitative and mixed methodologies, specifically using the example of teachers' regularly recording their experiences of success and failure in a journal. Similarly, Henson called for the in depth study of teachers in order to 'fully understand the relationship between the sources of efficacy

information, the meaning teachers attach to this information, and any ultimate change in their efficacy beliefs" (2002, p.147).

In one example of a quantitative study, Tschannen-Moran and Woolfolk Hoy (2007) examined two sources of self-efficacy, verbal persuasion and mastery experiences, amongst early career and experienced teachers. To assess the source of verbal persuasion, participants (n=255) were asked to rate the interpersonal support they received from the school administration, colleagues, parents and community on a 9-point scale (1=Non-existent to 9=Excellent). In assessing mastery experiences, participants were asked to rate their level of satisfaction with their past professional performance, along the same scale. The researchers found that interpersonal support was more important for novice teachers whilst more experienced teachers could draw from mastery experiences (Tschannen-Moran & Woolfolk Hoy, 2007). Tschannen-Moran & Woolfolk Hoy (2007) called for further research to explore the relative weight of the four sources in contributing to teacher self-efficacy.

More recently, Morris et al. (2016) reviewed the research investigating the sources of teacher self-efficacy published since 1977. Over half of the 82 studies reviewed had been published since 2010 (n=49), which suggests an increased interest in the sources of teacher self-efficacy. Research into the sources of teacher self-efficacy over the past seven years has been driven by a range of goals. Some have assessed the impact of professional learning programs targeted to the sources of self-efficacy (Bruce et al, 2010; Stevens, Aguirre-Munoz, Harris, Higgins, & Liu, 2013.), whilst other studies have investigated the relative weight or impact of each of the four sources on teacher's developing self-efficacy. For example, Palmer (2011) investigated the effectiveness of particular sources of efficacy information for enhancing elementary teachers' science teaching efficacy. Researchers found that increases in participants' (n=12) self-efficacy were primarily due to cognitive mastery and evaluative feedback received in situ. Phan & Locke (2015) used a qualitative design to investigate the sources of self-efficacy for Vietnamese EFL teachers and found that social persuasion was the most influential source of self-efficacy.

Measuring Sources of Teacher Self-Efficacy

Whilst Bandura (1997) categorised the four sources of self-efficacy as mastery experiences, social persuasion, vicarious experiences and affective or physiological states, there is some conjecture regarding how these sources are operationalized and measured within the educational context. In a more recent and extensive review of eighty-two empirical studies completed over a forty-year period, Morris et al. (2016) specifically evaluated the ways in which researchers have measured and conceptualised the sources of teacher self-efficacy. Building on the work of Wyatt (2014) and Klassen et al. (2011), they found that the assessment of sources of teachers' self-efficacy has been both inconsistent and problematic. Specifically, items or prompts used in studies of the sources have been written too narrowly, or broadly, or in ways inconsistent with Bandura's theory (1997). For example, Morris, et al. (2016) specifically critique the approach taken by Tschannen-Moran and Woolfolk Hoy (2007), stating that "conceptualising mastery experiences as a general appraisal of past performance is both limiting and vague" as it fails to capture the actual outcomes of teachers' direct actions ("Measures Used To Assess Mastery Experience," para. 5). Instead, Morris et al. (2016) suggested that researchers should ask teachers to focus specifically on the direct experiences that teachers reflect on in evaluating their ability to carry out similar tasks in the future. They proposed that student engagement, appropriate behaviour and students' demonstrating their understanding of the content can inform teachers' efficacy beliefs and are likely related to inferences teachers make about their own performances.

In relation to social persuasions, Morris et al. (2016) suggested that items which assess messages conveying capability-related information may be more appropriate measures of verbal persuasion as conceptualised by Bandura (1997). In their review, however, they found that researchers often assessed this source in terms of interpersonal support. A focus on the types and effectiveness of support, does not provide direct evidence that the participants received evaluative or persuasive feedback. Morris et al. (2016) suggest that researchers using qualitative measures could look at the less explicit messages, "for example instructors who are sought out by others for their teaching advice may receive the message that they are competent, whether or not that message is directly stated" ("Measures Used to Assess Social Persuasions," para. 3). To accomplish this, interviewees could be prompted to consider what messages they received from others. The authors also suggest that vicarious

experiences should be measured in ways that capture the influence of live, verbal, or symbolic models. Finally, to assess physiological and affective states as a source of teaching self-efficacy, researchers have tended to focus on negative physiological and affective states, and Morris et al. (2016) suggest a more balanced assessment of both positive and negative states which may have influences on teachers' sense of efficacy.

Whilst Morris et al. (2016) acknowledge the diverse ways in which the sources of self-efficacy have been measured, they do suggest that the sources of self-efficacy are difficult to measure in quantitative studies. Morris et al. (2016) suggest that interviews can be utilised by researchers to attain an in depth understanding of the sources of self-efficacy. They acknowledge that qualitative studies have elucidated a more nuanced understanding of mastery experiences, as participants are able to talk in depth about their experiences in reaction to interview prompts. In contrast, quantitative studies, they suggest, "have done little to advance understandings of how teachers' performances influence their self-efficacy" (Morris et al., 2016, "Measures Used to Assess Mastery Experiences," para. 9). In relation to verbal or social persuasions, they suggest that interviewees are asked to consider what they have been told explicitly, as well as the "messages" they have received from others. They conclude with the recommendation that "future research could involve exploratory studies… in which teachers from diverse backgrounds are asked to identify the roots of their beliefs in their pedagogical, content and technological knowledge. Data could be coded according to the sources described by Bandura (1997)" (Morris et al., 2016, "Directions for Future Research," para. 3).

Sources of Early Career Teacher Self-Efficacy

Whilst research investigating the sources of teacher self-efficacy has evidently increased over the past seven years (Morris et al., 2016), research specifically examining the sources of early career teacher self-efficacy is very limited. Morris et al. (2016) examined eighty-two empirical studies which investigated the sources of teacher self-efficacy. Of the studies included in this review, the samples were more often composed of pre-service (n=43) than practising (n=35) teachers. Within the studies investigating sources of self-efficacy of practising teachers, only three specifically examined the sources of self-efficacy of early

career teachers. Of the three studies reviewed, one was a dissertation. The remaining two studies were both qualitative in design.

In an early example of a study of the sources of self-efficacy of early career teachers, Mulholland and Wallace (2001) used a case study design to follow a teacher through the final year of university into the first year of teaching. Mastery experiences and social persuasions were the major sources of influence for increasing the participant's self-efficacy for science teaching. Mulholland and Wallace (2001) found that the enthusiasm [or engagement] of children was the one constant source of positive verbal information whilst the participant's experiences in managing the children's behaviour contributed to her mastery experiences. More recently, Hastings (2012) semi-structured interviews to investigate the self-efficacy for reading instruction of four early career teachers. The four participants reported vicarious experiences as the most influential source of information for their reading instruction self efficacy. As a result, Hastings (2012) recommended that opportunities be crafted for early career teachers to achieve mastery experiences through the use of a coach.

Although it has been established that early career teachers do have a lower self-efficacy than their more experienced colleagues, it is evident that little is known about the sources of self-efficacy for early career teachers. Consequently, this review now turns to an examination of the broader literature regarding factors which may contribute to early career teachers' self-efficacy within the school.

Professional school climate as a source of efficacy information for early career teachers.

For early career teachers, experiences in the workplace, including mentoring and induction programs have been positively related to increased self-efficacy. For example, Woolfolk Hoy (2000) reported that new teachers' self-efficacy was positively related to perceptions of support and mentoring programs. Similarly, LoCasale-Crouch, Davis, Wiens, and Pianta (2012) examined the effects of mentoring for 77 early career teachers and found that the quality of mentors' interactions, time spent with the mentor and participation in additional professional development with their mentor were significantly related to the early career teachers' self-efficacy. In an extensive study of over 5000 early career teachers, Mayer et al.,

(2015) found that teacher retention was linked to teachers' sense of being effective and support systems including induction and mentoring.

Relationships between early career teachers and their colleagues, students and school leadership also influence their self-efficacy. For example, Le Cornu (2013) examined the conditions required for the development of early career teacher identity, using the model of relational resilience (Jordan, 2006). This conceptual framework was used to understand the significance of relationships in the lives of early career teachers. Through examining the transcripts of the Johnson et al. (2010) study through the lens of relational resilience, Le Cornu (2013) presented the importance of a number of relationships within the lives of early career teachers to build their resilience, sense of teacher identity and positively affect their retention within the profession. Teacher-student relationships were cited as highly significant for the development of early career teachers, as they have a "significant impact on early career teachers' sense of efficacy and their developing teacher identity" (Le Cornu, 2013, p. 10). Additionally, relationships with teaching colleagues were found to be vital to early career teachers and their sense of confidence.

Due to significance of these relationships in developing confident early career teachers, in Australia, a range of support structures have been put in place. This follows a range of national inquiries into teacher education, the preparedness of early career teachers and rates of early career teacher attrition (Australia Parliament House of Representatives Standing Committee on Educational and Vocational Training, 2007; Mayer et al., 2015). Recommendations, including induction programs, mentoring and ongoing professional development, have been made to improve the experience of early career teachers. In New South Wales, for example, recent policy mandates that all Department of Education schools provide a mentor for early career teachers and reduce their face-to-face teaching time for their first two years of employment (NSW Department of Education, 2016). Additionally, throughout all NSW schools, a supervisor is required for each beginning teacher to assist them through the Proficient Teacher accreditation process (NESA, 2016).

There have been, however, reported discrepancies between these system wide mandates and the lived experience of early career teachers. Schuck, Aubusson, Buchanan,

Varadharajan and Burke (2017) surveyed over 300 early career teachers in New South Wales and found a significant range of experiences. Early career teachers reported a range of formal and informal support, including mentors, and highlighted the benefits of working collaboratively with colleagues. However, several early career teachers reported negative experiences in which school leadership and colleagues neglected to provide support and emphasised their lack of experience or skill. The researchers concluded that much more needs to be done to improve the experience of early career teachers.

Understanding the localised contextual factors within schools, such as induction programs, mentors, professional learning, peer relations, lesson observations, and leadership roles, which may contribute to the self-efficacy of early career teachers, would be of great value as we attempt to learn how to better train and equip teachers for their complex tasks (Tschannen–Moran and Woolfolk Hoy, 2007).

Summary

There are expansive research findings which argue the importance of teacher self-efficacy as a determinant of performance (Zee & Koomen, 2016). This is particularly true for early career teachers, who are reported to have lower levels of self-efficacy than their more experienced colleagues. Despite growing evidence of teacher attrition within the first five years of being in the profession, and lower levels of self-efficacy within this career stage, the formation of early career teachers' self-efficacy beliefs remains an under researched area.

Focus of the Study

It is clear that there are two under-researched areas in this field, one being the development of self-efficacy within the early-years of teaching and the other being the sources of self-efficacy for early career teachers. In the context of this relatively small study, the researcher seeks to examine the level of self-efficacy of a group of early career teachers, defined as those in the first five years of teaching. Using qualitative methods, this study also seeks to explore their sources of self-efficacy as they consider lessons planned for the immediate future and their day to day experience as early career teachers.

Research Questions

The research questions investigated by this study are:

1. **What are the levels of teacher self-efficacy of early career teachers?**
2. **What are the sources of self-efficacy reported by early career teachers in the context of lesson planning and delivery?**
3. **In the context of their day to day teaching, which factors within the school professional climate enhance or hinder the self-efficacy beliefs of early career teachers?**

CHAPTER 3

Methodology

Research Design

The research questions for this study were investigated in a sequential mixed-method design (Teddlie & Tashakkori, 2009). The initial study design incorporated three phases. Phase one was a quantitative phase, to gather self-efficacy information from the participants using a survey instrument. This was followed by a qualitative phase, during which participants recorded their reflections on sources of self-efficacy information within a journal (see Appendix C for journaling prompts), over a four-week period. In the third phase, a semi-structured interview was utilised to gather further insight into the sources of self-efficacy beliefs of early-career teachers. Unfortunately, this intensive research design resulted in only three teachers agreeing to participate, with only two teachers completing all three phases of the original study.

Due to this low participation in the first study design, a modification to the original research design was necessary. The survey instrument and journal were adapted into one online survey (see Appendix D) distributed through two informal online professional learning networks. All participants, from both first and second participant recruitment (N=40), completed the same survey instrument. However, participants in the second round of recruitment (n=37) recorded their reflections on their sources of self-efficacy within the online survey at a single point in time. This resulted in successful recruitment and a single time point of information on the sources of self-efficacy. All participants from this second round of recruitment were offered the opportunity to participate in a semi-structured interview.

Participants

The participants were 40 early career teachers. All teachers were in their first five years of part-time or full time employment as a teacher. The early career teachers ranged in age from 23 to 57 years, with a mean age of 34 years. They were primarily female (82.5%) and the majority (77.5%) taught in Primary schools. The teaching experience of the participants

ranged from 6 months to 60 months (5 years), with an average of 34 months or 2.8 years of teaching experience. Table 1 provides demographic characteristics of the sample. A subsample of seven teachers were recruited to participate in an interview. All participants were provided with the opportunity to participate in the interview. Twelve participants provided their contact details and 7 of these were able to participate within the time restrictions of the study.

Table 1. Demographic characteristics of participants (n = 40)

Demographic		n	% (n = 40)
Gender	Male	7	17.5
	Female	33	82.5
Teaching	Primary	31	77.5
	Secondary	9	22.5
Schooling System	Government	25	62.5
	Catholic	3	7.5
	Independent	12	30
Months Teaching	0 - 12	4	10
	13 - 24	10	25
	25 - 36	7	17.5
	37 - 48	13	32.5
	49 - 60	6	15

Table 2 – Demographic characteristics of interview participants (n=7)

Demographic		n	% (n = 7)
Gender	Male	1	14
	Female	6	86
Teaching	Primary	5	71
	Secondary	2	29
Schooling System	Government	4	57
	Catholic	1	14
	Independent	2	29
Months Teaching	0 - 12	1	14
	13 - 24	2	29
	25 - 36	1	14
	37 - 48	3	43
	49 - 60	0	0

Measures

Teacher self-efficacy.

Teacher self-efficacy was assessed with the *Teachers' Sense of Efficacy Scale* (TSES) developed by Tschannen-Moran and Woolfolk Hoy (2001) (see Appendix A). This scale measures the individual's assessment of their capabilities to execute a course of action in three areas, Instructional Practice (e.g. *To what extent can you provide an alternative explanation or example when students are confused?)*, Student Engagement (e.g. *How much can you do to motivate students who show low interest in work?*) and Classroom Management (e.g. *How much can you do to control disruptive behaviour in the classroom?*). The measure consists of 24 items, assessed on a 9-point scale (1-Nothing, 3- Very Little, 5-Some Influence, 7-Quite a Bit and 9-A great deal). Responses were scored using the *Directions for Scoring the Teachers' Sense of Efficacy Scale* (2001) (see Appendix B) provided by the authors. This measure is regarded as the most widely used in this field of research (George, et al., 2015; Zee & Koomen, 2016) with a reliability for the subscales ranging from .86 to .90 and from .92 respectively for the three subscales, and .95 for the full scale in

previous research (Tschannen-Moran & Woolfolk Hoy, 2001). This scale is regarded as one of the most congruent measures with Bandura's self-efficacy theory (1977) as it addresses concerns raised by Bandura (1997) regarding the context specificity of self-efficacy.

Sources of teacher self-efficacy.

Sources of self-efficacy beliefs were assessed through two measures. First, teachers were invited to complete a written reflection on the sources of their self-efficacy beliefs in the context of lesson planned for the coming week. Then an interview was conducted to further explore the sources of the participant's beliefs. An overview of each measure follows.

Written reflection on sources of self-efficacy.

Participants provided written reflections in a format supplied by the researcher. Firstly, responded to three questions adapted from the three subscales of the TSES, *Instructional Strategies, Classroom Management and Student Engagement* (Tschannen-Moran & Woolfolk Hoy, 2001). Each question assessed self-efficacy for the planned teaching activity:

- *How certain are you that you can manage the classroom during the planned lesson?*
- *How certain are you that you can effectively execute planned instructional strategies?*
- *How certain are you that you can engage your students in the planned learning activities?*

Participants were asked to record the strength of their efficacy beliefs on a 100-point scale, ranging in 10-unit intervals from 0 (Cannot do); through 50 (Moderately certain can do) to 100 (Highly certain can do), as recommended by Bandura (2006).

Next, participants were asked to provide a written reflection on the reasoning for their rating. Four open ended prompts were provided which encouraged reflection the four sources of self-efficacy mastery experiences, vicarious experiences and social/verbal persuasion and physiological state (Bandura, 1986) (see Appendix C). The four open ended prompts were:

- *Are there any specific teaching experiences that have contributed to your ratings for the upcoming lesson?*
- *Have you received any information from peers, students, parents or school leadership that have contributed to any of the ratings?*

- *Have you seen any teaching practices modelled that have contribute to the ratings above?*
- *Are there any other factors or experiences which have led to these ratings?*

As described in the research design, participants in the first round of recruitment (n=3) were provided with a journal in which to record their performance-based self-efficacy beliefs and the perceived sources of these self-beliefs in response to the prompts as outlined above. Participants were asked to record their beliefs and reflections on the sources on a weekly basis over a four week period.

Due to the low participation rate in the first round of recruitment (n=3), in which only two of the participants completed the journal, it was necessary to adapt the response scale and reflective questions, outlined above, into a briefer online survey (Appendix D). This second round of participant recruitment was more successful with participants (n=37) recruited through two online professional learning networks. These participants only had the chance to reflect on their sources of self-efficacy beliefs at one point in time, when completing the survey. Therefore, it was necessary to re-consider the inclusion of the journals in the data analysis, completed by only two participants in the first round of recruitment. To give each participant an equal voice in the study, it was decided that only the first entry from each journal would be included in the analysis of all written reflections. The responses were coded using the a priori categories of the four sources of self-efficacy as outlined by Bandura (1997), mastery experiences, vivacious experiences, social persuasions and affective states. Results were further analysed in terms of participants with high and low self-efficacy as defined by the overall self-efficacy scores above and below the mean.

Interview.

At the conclusion of the survey and journal entries, all participants were invited to take part in a semi-structured interview. The purpose of the interview was to better understand the day to day life of an early career teacher and how the professional climate of the school contributed to the self-efficacy beliefs. It has been noted that to date, much of the research on teacher self-efficacy has relied on quantitative methodologies which ignore the lived experience of the participants and their contexts (Labone, 2004; Wheatley, 2005; Wyatt, 2014). Self-efficacy theorists have also argued for more qualitative research which may

provide deeper insights (Pajares, 1997). Drawing on the leading work of Zeldin and Pajares (2000) in this regard, a semi-structured interview protocol (see Appendix E) was devised to allow participants the opportunity to explain the four sources of self-efficacy. Question prompts inquired about the feedback or messages they receive about their work as a teacher; the experiences that may have contributed to their beliefs as a teacher, and specifically experiences in the classroom and day to day life of the school that may have influenced these beliefs (see Appendix E for the interview protocol).

Additionally, interview questions were tailored to each participant, to examine the sources of their domain specific self-efficacy beliefs. For example: *I noted from your responses that you are quite certain of your ability to manage your classroom. Can you talk to me about the experiences, feedback or messages you have received that have led to this belief?* This was in keeping with the advice of Wyatt (2014) who suggested that attention be paid to item specific responses, in this case, the differences between responses to the three domains of classroom management, instructional strategies and student engagement. These questions were phrased according to Bandura's recommendations, using the words 'certain of your ability' and the questions align with recommendations from Morris et al. (2016) to have teachers identify the roots of their beliefs.

Within the Information and Consent Form, participants were provided with the option to nominate a venue and time for their interview (see Appendix F for Information and Consent Form). One participant nominated a face-to-face interview, whilst the remaining 6 interviewees nominated phone interviews. It is necessary to acknowledge the potential impact of social desirable responses bias. This was managed through the reiteration of the participants' privacy. Each interview began with a reiteration of the anonymity of the participant's responses and their option to withdraw from the study at any time, as outlined in the Information and Consent form (see Appendix F). Additionally, all interview questions were open ended, requiring participants to reflect on personal experiences as early career teachers. All interviews were recorded and transcribed, and a preliminary exploratory analysis was completed. Transcripts were read and re-read to capture the sense of the interview and memos were noted in the margins (Creswell, 2012). Responses to these questions were then coded according to the sources described by Bandura (1997).

Procedure

Voluntary participation was invited through an information statement emailed to all teaching staff within two K-12 independent schools. School administration then forwarded this to all teaching staff. Eligible participants, those teachers in the first five years of part-time or full time employment as a teacher, were invited to read the information form and consent to their participation. Due to low participation rates (n=3) within the formal school setting, a further recruitment drive was then sought through two informal online professional learning networks, TeachMeet Sydney/NSW and the Preservice Teacher Chat group #pstchat on Twitter, both of which have a following of in-service early career teachers. This second method of recruitment resulted in a more substantial total number of participants (n=37). An information and consent form was included in online survey (see Appendix F for Information and Consent form). Participants were assured of the voluntary nature of the participation, the anonymity of their responses and their option to withdraw from the study at any time.

CHAPTER 4

Results

In this chapter the results of the research are presented according to the structure provided by research questions. First, the teacher self-efficacy of the participants are examined. Then, through an analysis of survey and interview data, the sources of the early career teachers' self-efficacy will be examined.

Self-Efficacy of Early Career Teachers

Teacher self-efficacy was assessed on the *Teacher Self-Efficacy Scale (TSES)* (Tschannen-Moran & Woolfolk Hoy, 2001). This was completed by all participants (N=40).

Table 3. Self-efficacy of early career teachers (N = 40).

Self-efficacy	Mean	SD
Overall self-efficacy	6.86	1.47
Self-efficacy for student engagement	6.68	1.49
Self-efficacy for instructional strategies	6.90	1.40
Self-efficacy classroom management	7.00	1.50

Scores indicated a low overall self-efficacy of 6.86, as compared with the overall mean (7.1) established by Tschannen-Moran and Woolfolk Hoy (2001). The 40 participants scored highest in the domain of self-efficacy in classroom management and lowest for self-efficacy in student engagement. Examining individual survey items, the lowest means were recorded for items about student engagement, specifically relating to assisting families in helping their children do well in school (mean = 6.18) and improving the understanding of a student who is failing (mean = 6.35). The TSES item with the highest mean related to classroom management. Participants were most certain in their ability to make expectations clear about student behaviour (mean = 7.78), establish routines to keep activities running smoothly (7.52).

The Sources of Self-Efficacy

To understand the sources of self-efficacy reported by the group of early-career teachers, participants were asked to reflect on the sources of their teacher self-efficacy in the context of lessons planned for the coming week. Participants were also invited to participate in an interview to discuss the identified sources. The analysis of data collected from these two measures are outlined below.

> **Research question 2. What are the sources of self-efficacy reported by early career teachers in the context of lesson planning and delivery?**

As noted earlier, two participants from the first round of recruitment completed their responses in a journal over the course of four weeks and the remaining participants completed a single reflection on the planned weekly lessons in an online survey. To integrate these two sets of results, only the first reflection of the two participants from round 1 of recruitment were used, alongside the single reflection of participants in the second round of recruitment. In total, there were 25 participants who provided written reflections on their sources of self-efficacy.

Participants were firstly asked to rate their sense of self-efficacy for the upcoming lesson on a 100 point scale. These self-efficacy ratings prompted the written reflections on the sources of self-efficacy. As shown in Table 4, participants were most certain in their ability to manage the classroom; however, this item also resulted in the most varied response. Participants were least certain of their ability to engage students. The responses to these items reflect the results of the TSES, outlined in Table 3.

Table 4. Self-efficacy in the context of specific lesson planning and delivery (n=25)

Self-efficacy	Mean	SD
Student engagement	76.5	11.36
Instructional strategies	78.54	10.58
Classroom management	80.82	17.83

Participants were then invited to respond to four open-ended response items asking them to nominate the experiences or sources that contributed to these self-efficacy ratings. These brief responses were coded using the a priori categories of the four sources of self-efficacy as outlined by Bandura (1997), mastery experiences, vivacious experiences, social persuasions and affective states. References to each of the four sources of self-efficacy are noted in Table 5. To analyse the data, the four sources of self-efficacy were operationalized as:

- **Mastery experiences -** the outcomes of teachers' direct actions or past performance attainments.
- **Social persuasions -** social messages that convey capability related information rather than perceived support and/or evaluative feedback.
- **Vicarious experiences -** observing a live, verbal or symbolic model, or oneself, perform a task.
- **Affective and physiological states –** negative and positive physiological and affective states,

The frequency of nomination of each source is reported in Table 5. Mastery experiences and social persuasions were the most referenced sources of efficacy for the participants, followed by vicarious experiences. There were only two references to affective or physiological states in the responses.

Table 5: Summary of sources of self-efficacy

Source	Frequency Count*	Example
Mastery	30	My first years of teaching were in an extremely challenging school behaviourally, which improved my confidence in behaviour management.
Social Persuasion	29	A colleague watched a lesson of mine….this feedback contributed to my ratings on classroom management…
Vicarious	22	I can often observe more experienced teachers. I am always reflecting on my own teaching and taking parts of their practice to add to my own
Affective	2	Love of teaching and passion to push myself to do better

* Participants could refer to more than one source across their responses.

Results were further analysed in terms of participants with high and low self-efficacy as defined by overall self-efficacy scores above and below the mean. As shown in Table 6, participants with lower self-efficacy nominated fewer sources of their self-efficacy in comparison to those with higher self-efficacy.

Table 6. Number of references* to each source of self-efficacy within the reflections for participants with high and low self-efficacy.

	Mastery	Social Persuasion	Vicarious	Affective
Participants with higher overall SE (>6.86) n=14	20	17	13	2
Participants with lower overall SE (<6.86) n=11	10	12	9	-
Total	30	29	22	2

* Participants could refer to more than one source across their responses.

Mastery experiences as sources of self-efficacy

Twenty-one of the 25 participants indicated that there were specific teaching experiences that had contributed to their self-efficacy ratings. These 21 participants provided 30 different examples of mastery experiences, indicating that this was the main source of self-efficacy for the majority of participants. As noted in Table 6, participants with a higher sense of overall self-efficacy reported more mastery experiences than those below the mean. Several of the early career teachers with higher self-efficacy noted two or three separate mastery experiences which had contributed to their beliefs in their ability to manage, engage and instruct the students in their class.

Of the 30 responses reflecting mastery experiences, 27 of these responses reflected teaching experiences which had positively contributed to a sense of self-efficacy (see Table 5 for an example). . A further three responses reflected experiences that appeared to undermine a sense of mastery, including, “I’m teaching Science and am not Science trained.” (2717) and “students continue with the bad behaviour which includes hitting other students, talking rudely and doing no work” (1217). In each case it is notable that these responses contain a

negative self-reflection on the abilities of the teacher, reflecting a low sense of self-efficacy. Next, responses to this question were analysed for any emerging patterns regarding the kinds of teaching experiences which had led to these ratings. Whilst participants were asked quite generally about 'teaching experiences' which had contributed to their ratings for all three areas of student engagement, instruction and classroom management, it was noteworthy that the participants primarily reflected on their perceptions of student engagement when accounting for their beliefs. There were 11 specific references to students *looking* engaged, for example; 'The students are mostly engaged in my lessons and show that they are enjoying most of their lessons' (917) and 'The children were engaged in the lessons so far and are looking forward to continuing their work this week' (3217). In these responses, the early career teachers' sense of mastery in fostering student engagement were explanations for their self-efficacy rates.

Sources of social persuasion

Participants were asked if they had received *any information from colleagues, students, parents or school leadership that had contributed to their ratings for the upcoming lessons*. Within the responses to this question, there were 29 indications of social persuasion that contributed to their self-efficacy ratings. As noted in Table 6, participants with an overall self-efficacy above the mean of 6.86 reported more examples of social persuasion than those below the mean.

Three main sources of persuasive information were identified, namely colleagues, school leadership and students. Colleagues were the most referenced source of social persuasion (n=11) for example, 'A colleague watched a lesson of mine with this class and mentioned that I have good relationships with my students... This feedback contributed to my ratings on classroom management and executing planned instructional practices' (317). School leadership were also referred to as a source of information (n=8) as one participant stated, "I recently had my HOD observe my class and she gave me productive and genuine feedback that led me to believe that my lessons and general classroom management led to successful learning experiences.' (3017). Students and their parents were also a source of evaluative feedback mentioned in 9 responses. Six responses specifically referred to feedback from students: 'My confidence in my management of my class comes from students expressing

that they feel safe and happy in the class'. A further three responses referred to feedback from parents: "Some parents of this class have also told me how much their children are enjoying maths this year and are proud of the improvements they are making. These two pieces of feedback have definitely contributed to my ratings on student engagement." (317)

Vicarious experiences as sources of self-efficacy

To ascertain the impact of vicarious experiences on the early career teachers' self-efficacy beliefs, participants were asked if they had *seen any teaching practices modelled* that had contributed to their ratings for the upcoming lessons. Participant responses (n=22) indicated they had seen a teaching practice modelled which had contributed to their belief that they could manage the classroom, execute instructional strategies or engage the students.

Eleven responses referred to colleagues including references to teaching collaborations (see table 5 for an example) and teaching spaces that facilitated observation of practice:, 'I'm very lucky to be in an open plan learning space with a team feel to it which means I can often observe more experienced teachers. I am always reflecting on my own teaching and taking parts of their practice to add to my own' (917). Professional learning opportunities (n=4) also contributed to self-efficacy ratings. For example, one participant noted, 'I recently went to a PD seminar … The presenter showed a snippet of her lesson which I am trying to mirror in my next lesson' (317). One response from a participant with a low sense of self-efficacy reflected a vicarious experience which had undermined their sense of self-efficacy: 'Admin [school leadership] have said that no child is unteachable and yet when they attend the class to show how it's done they fail to make the students behave without even the need of teaching them any curriculum.' (1217).

Summary

The analysis of the two journal entries and open-ended survey responses identified 83 sources of self-efficacy. Mastery experiences and social persuasion were the most frequently cited sources of self-efficacy for early career teachers. The participants in this study also referred to colleagues as the primary source of information in reference to both social persuasions and vicarious experiences. Two participants identified sources that had

undermined their sense of efficacy including messages from School leadership, student behaviour and a lack of mastery of content knowledge.

Research question 3. In the context of their day to day teaching, which factors within the school professional climate enhance or hinder the self-efficacy beliefs of early career teachers?

Interviews were conducted with seven early career teachers who volunteered at the conclusion of completing the online survey. The purpose of the interview was to better understand the day to day life of an early career teacher and how the professional climate of the school contributed to the self-efficacy beliefs reported in Table 3. Due to the lack of research into the sources of early career teacher self-efficacy it was necessary to turn to the research regarding formal and informal support structures, processes and relationships that support the development of self-efficacy within early career teachers. The interview transcripts were reviewed to understand any themes emerging within the context of this literature related to the professional school climate. For example, references to induction programs, formal or informal mentoring, lesson observations and significant relationships with students and colleagues, which may have contributed to the early career teachers' beliefs in their ability to teach. These factors within the professional school climate were then aligned to Bandura's four sources of efficacy information, as noted in Table 9.

As noted in Table 7, this subsample of early career teachers, who self-nominated to participate in an interview, had a slightly higher level of teaching self-efficacy (m=6.95, SD = .49) than the whole group of participants (m=6.86, SD=1.47). The means of each subscale reflect the same results found in the TSES results (see Table 3) with higher levels of self-efficacy for classroom management than for instructional strategies, and self-efficacy for student engagement being the lowest within the three subscales. As noted in Table 8, interview participants were coded as either a low self-efficacy interviewee (LSEI) or a high self-efficacy interviewee (HSEI). This was based on their overall self-efficacy, determined through the completion of the TSES. The early career teachers within both sub-groups had varying lengths of teaching experiences (see Table 8).

Table 7: Interview participants (n=7) and scores from TSES.

Self-efficacy	Mean	SD
Overall self-efficacy	6.95	.49
Self-efficacy for student engagement	6.77	.60
Self-efficacy for instructional strategies	6.95	.47
Self-efficacy classroom management	7.11	.85

Table 8. Teaching experience of interview participants with high and low self-efficacy.

	Participant Code	Months Teaching
Higher SE >6.86	HSEI.1	24
n=4	HESI.2	42
	HSEI.3	48
	HSEI.4	15
Lower SE <6.86	LSEI.1	6
n=3	LSEI.2	36
	LSEI.3	48

The interview participants referenced social persuasion more than any other source of efficacy information, as noted in Table 9. Early career teachers with higher levels of self-efficacy referenced a greater range of mastery experiences within their interviews. Teachers with lower self-efficacy referenced more examples of social persuasion than any other source.

Table 9. Number of references to each source of self-efficacy within the interviews for participants with high and low self-efficacy.

	Social Persuasion	Mastery	Vicarious	Affective
Higher SE >6.86 n=4	20	21	9	13
Lower SE <6.86 n=3	12	5	4	4
Total	31	22	13	17

Table 10: Sources of self-efficacy reflecting the professional school climate from interviews with early career teachers (n=7).

	Factors related to professional school climate	
Source	Factors which enhance self-efficacy	Factors which inhibit self-efficacy
Social Persuasion	• Informal relationships. E.g. planning / staffroom conversations • Formal relationships e.g. Mentors	
Mastery Experiences	• Productive relationships with students	• Lack of experience, guidance, support in differentiating the curriculum. • Lack of experience, guidance and support in classroom management
Vicarious Experiences	• Formal and informal peer observations • Talking through experiences – getting advice from others	

Social Persuasion

All participants referred to social persuasion as a source of their self-efficacy beliefs and this was the most referenced of the four sources of self-efficacy within the interviews (see Table 9). While the seven interviewees referred to students and parents as providing evaluative feedback, the most frequent source mentioned reflected formal and informal relationships with colleagues.

Formal and informal relationships with colleagues.

Many of the interviewees referred to both formal and informal sources of feedback. Formal relationships with colleagues, that served as sources of persuasive feedback were characterised by mentoring or supervising roles; however, this was mentioned by just one participant: 'It was really helpful to talk to others and they said, "Oh well you know when you did this that was really good and yeah try this instead." So there was a lot of feedback on the run I guess in the staffroom and with my mentor or with my supervisor' (Participant HSEI.4). In contrast, informal relationships that served as a persuasive source of information were characterised by more day to day support from colleagues, for example, "There's a lot of support, it's a very supportive environment. I get a lot of, you're doing a really good job" (LSEI.1).

Participants referred to colleagues providing feedback on both pedagogical practices, as well as lesson planning: "The other year 1 teacher, we worked together a lot and planned together and she gave me feedback on planning and she was happy with what we were doing together" (HSEI.2). Similarly, for participant LSEI.2, "I've got a really good support network… people who are willing to help me and give me advice and come in to my classroom and share lesson plans and resources and I think all of those things really help me."

School leadership also provided participants with evaluative information which enhanced their sense of self-efficacy. Participant HSEI.1, who had a strong sense of self-efficacy in her ability to instruct students stated, "I've also had the deputy principal give me Year 12 kids for some one on one – I've often been asked to help a kid who's not in my class" (HSEI.1). Participant HSEI.3 recounted her experience in her first school where "there was never a

sense of intimidation from other teachers or from leadership... It was sort of we're all here to learn we're all just trying new things and you were encouraged and celebrated."

In summary, the collegial support, from fellow teachers and school leadership, provided important evaluative feedback for the early career teachers. As stated by participant HSEI.3, "I think the biggest impact was me practicing with the guidance of people, I didn't just have an epiphany every time something went wrong, it was definitely other teachers observing me and me talking to them about it and me taking an experience I've had myself and talking to them about it and them advising me".

Mastery experiences

Each of the seven early career teacher interviewed referred to a mastery experience. These mastery experiences primarily related to relationships with students and classroom management.

Productive relationships with students within the classroom

Achieving a sense of mastery, predominantly in relation to student relationships and behaviour, contributed to a sense of efficacy for all participants regardless of high or low levels of self-efficacy. .

Interview participants categorised as having higher levels of self-efficacy recounted multiple instances of the gradual development of their sense of mastery over time. This included a focus on developing productive relationships with their students in order to manage the classroom. For example, participant HSEI.3 recounted, "I went from my first year when I think you just want students to like you and that's your priority… I found that changed a lot probably in my second year and its only gotten stronger now… I do think it's practice and being bad at it and then reflecting on that and getting better." Similarly, another participant stated, "This last few months I've really been able to find that balance between behaviour management and lesson delivery… once I realised I needed to spend more time on behaviour management, I felt more confident in the lesson delivery" (Participant HSEI.4).

An interesting feature of the accounts of participants with high self-efficacy was the sense of change and development over time, including the experience of unsuccessful classroom

environments that led to a sense of mastery. For example, participant HSEI.2 explained that difficult classroom experiences had left her with a stronger sense of efficacy, “I’ve supported kids through really difficult things so I feel like from that... well if I can do that, I can do anything.” Similarly, for participant HSEI.3, feelings of being unsuccessful in her previous role affected her for the next six months “it did take me a really long time and a lot of experiencing success in my new position to really feel like I still had it”. Despite the negative events preceding these beliefs, both of these participants could clearly articulate a sense of mastering the skills needed to manage the classroom.

As noted in Table 9, teachers with a lower overall self-efficacy did not reference as many mastery experiences within their interviews. However, the mastery experiences they did mention were associated with productive student relationships. For example, participant LSEI.1 referred to a sense of mastery when she saw students engaged in a lesson she had delivered, “I could see that they were working, really focused and they were listening to each other when I see it working that make me think I can do this, I can be a teacher, this is working.” This was echoed by participant LSEI.2, “I think kids wanting to come to my class, the relationships that I’ve formed with my students, all of those things are really positive for me, and that’s given me confidence and now I feel like I can be myself in the classroom and I’m enjoying it”. Though these are both examples of mastery experiences, both of these participants, with lower self-efficacy, were not able to provide the same level of personal reflection regarding their development. This was a key difference between participants with lower and higher self-efficacy.

In summary, the mastery experiences involved in developing productive relationships with students within the classroom were often related to a sense of confidence and stronger classroom management skills. While participants with a higher sense of self-efficacy provided longer narrative accounts of gradual change and development over time, it is clear for participants with a lower sense of self-efficacy that mastering a productive relationship with their students seemed to have the greatest effect on how they saw themselves as teachers.

Vicarious experiences

Peer observations and talking with colleagues about their past experiences supported all participants' sense of efficacy in their own classroom management and engagement of students. The subsample of early career teachers specifically referenced the importance of peer observations for developing their abilities and confidence.

Formal and informal peer observations.

Formal and informal programs for observing colleagues were referenced within the interviews by three participants. For participant HSEI.4, the formal structure of lesson observations organised by his school enhanced his sense of efficacy for teaching Math, "There is a quality teaching program…experienced teachers can come into the classroom of early career teachers. … my supervisor has taught the class… I found that really helpful to see that in action … because I could see a teacher interacting with my students and what that teacher would say to specific students and how to engage them or how to direct them back to a task, was really helpful." Other teachers also noted the importance of formal observation opportunities as a source of their current self-efficacy: "At my previous school we had [teaching] triads so we'd go and watch someone else, and they watch someone else and then that person would watch us… it was mainly little things that you'd pick up on. … you'd get little ideas of things you would do in your own classroom" (HSEI.2). For these participants, formal observation structures were noted; however, their informal observations and interactions with colleagues were also recounted. Participant LSEI.2 recalled the observations she had made of her colleagues interacting with students, "I see what great relationships and respect they have from the students and it kind of makes me want to be like that." (LSEI.2). Similarly, for participant HSEI.2, "watching the speech therapist has been hugely helpful for me because now I know what a language disorder looks like… knowing how to do that has been really helpful" (HSEI.2).

It is noteworthy that high self-efficacy participants particularly acknowledged the importance of mastering the skills themselves after observing their peers: "I think you need that balance of seeing the model of others and … and then doing it yourself. But I think the weight would be more on the doing it part than anything else." (HSEI.3).

Factors within the professional school climate that inhibit early career teacher self-efficacy.

Interviews with teachers also identified sources that undermined their sense of self-efficacy. Teachers with both high and low levels of self-efficacy attributed their lower levels of belief in their ability to engage students to a lack of skill in differentiation. Three of the 5 participants noted a lack of guidance or development in this area. Additionally, two teachers recounted experiences with classroom management from the first two years of their career which had significantly undermined their self-efficacy. Once more, these teachers referred to a lack of support and guidance from School leadership.

Lack of experience, guidance, support in differentiating the curriculum.

The main factor that inhibited self-efficacy within the day to day life of the early career teachers related to a lack of knowledge of and experience in differentiating curriculum for students with diverse abilities. This was mentioned by 5 of the 7 participants. The experiences that undermined their sense of efficacy predominantly referred to their lack of mastery in differentiating for the range of abilities within their classes.

The inability to differentiate for students with the full range of abilities came through from each participant as a lack of mastery which concerned them and effected their sense of efficacy in the domain of student engagement, as demonstrated in the lower mean for this domain in their responses to the TSES. Participant HSEI.4 said "in a word, probably differentiation, understanding how to differentiate so your students are engaged, is something I don't feel as confident in." When asked to account for her comparatively lower level of belief in her capability to utilise a range of instructional strategies, specifically, providing challenge to capable students or adjusting lessons to suit varying levels of students, participant HSEI.3 responded; "I don't have nearly as much confidence in that as I do in behaviour management…. Extending students, that would be my main source of worry and I would say that comes from teaching in a place where everyone is so far behind the curriculum" (HSEI.3). Following on from this, the participant stated, "I've not had as much guidance with that, I haven't had observations with the pure goal of looking at how I've differentiated for the different ability groups… I haven't had any directed development on that from my mentors"

This was echoed in the response from HSEI.1, **"**I do think that while I'm pretty good with kids who are average, when there's a child in my class who is really struggling I find that incredibly difficult. I just don't feel I do a good job of that... I just don't feel like I'm helping. I feel very limited in my knowledge or experience." This participant continued, "I ask for help but I still feel like its really grazing the surface…I talk with Learning Support all the time but I just don't think we're helping.." (HSEI.1). Participant LSEI.2, who has a significantly lower belief in her ability to engage students said, "I find I differentiate really well for bottom kids but not for top kids" (LSEI.2). This participant also noted, "I would like more feedback on differentiation on how I can target the different ability levels".

*Lack of experience, guidance and support in classroom management**.***

While all participants recounted mastery experiences in creating productive relationships with their students, two participants recounted experiences within their first two years of teaching which had left them both with a low level of self-efficacy. Both experiences were linked to challenging classroom environments and a lack of support from school leadership.

For participant HSEI.2, her "first teaching job, it was really hard and I put a huge amount of expectation on myself, like I didn't know at that point that you could actually ask one of the admin staff to come and assist you if you couldn't manage what was happening in your classroom. I just thought it was all on me and I thought if I couldn't get the class sitting nicely and all engaged in their work that that was my fault." The lack of guidance in this challenging school environment over the first three terms culminated when, "I actually left my classroom one day because I was in tears… I walked into the deputy's office and just burst into tears and I said to them I feel like I can't manage and that was the first time that they said to me that they thought I was a good teacher… they actually didn't realise that I was a graduate"

For participant HSEI.3, a successful first year of teaching resulted in her being given the "difficult class" the following year. "I was not able to handle it and that really knocked my confidence in all areas, especially my ability to teach… I think it was because I wasn't able to experience success, even if success was happening it was never visible". Similarly, this participant experienced a lack of support, 'I was lacking the support from my leadership team and learning support to get rid of that view… there was a lot of you know "its ok, its not as bad as you think" the support was quite shallow'.

Summary

The analysis of interview transcripts identified important sources of self-efficacy for early career teachers within the professional school climate. Relationships with colleagues which enabled evaluative feedback, and productive relationships with students within the classroom, were two important sources which enhanced the self efficacy of the participants. Conversely, a lack of support and guidance in differentiating the curriculum and classroom management undermined the participants' self-efficacy.

CHAPTER 5

Discussion

The purpose of this study was to explore the sources of self-efficacy among a sample of early career teachers. The study was seen to be of value in that the exploration of the sources of self-efficacy for teachers in the first five years of their career is an area lacking in research. Written reflections, in the context of lesson planning, were analysed. Interviews with seven early career teachers were conducted to assess the impact of the school professional climate.

As might be anticipated from the literature, the sample of 40 early career teachers did have lower overall levels of self-efficacy than the mean established by Tschannen-Moran and Woolfolk Hoy (2001). A subsample of these teachers (n=25) reflected on the sources of their self-efficacy in the context of lesson planning. Mastery experiences and social persuasion were referred to the most within the written reflections. Important findings emerged through the analysis of interviews with 7 early career teachers, 4 with higher self-efficacy and 3 with lower self-efficacy. Within the professional school climate, relationships with colleagues which enabled evaluative feedback, and productive relationships with students, were two important sources which enhanced the self efficacy of the participants. Conversely, a lack of support and guidance in differentiating the curriculum and classroom management undermined the participants' self-efficacy.

Self-efficacy of early career teachers.

The levels of overall self-efficacy reported by the sample of early career teachers were similar to those reported in previous studies with samples of the same career stage (Klassen & Chiu, 2010; Tschannen Moran & Woolfolk Hoy, 2007). This study adds to the research base in this area confirming that teachers in the first five years do have a lower self-efficacy than more experienced teachers.

An interesting finding arising from the TSES survey was the high level of teaching self-efficacy within the domain of classroom management, (M=7.00, SD= 1.5) which is higher than the mean for this domain established by Tschannen-Moran & Woolfolk Hoy (2001). This result contradicts the literature regarding early career teachers having a lower self-efficacy. However, in the remaining two domains, instructional strategies and student engagement,

the levels of self-efficacy were indeed lower than the reported means. Overall, these results are consistent with the literature that early career teachers do have a lower level of teaching self-efficacy than their more experienced colleagues.

The sources of self-efficacy for early career teachers.

Social persuasion and mastery experiences were the two main sources of self-efficacy referred to by this group of early career teachers. This was clearly evident in both the written reflections and interviews. Significantly, early career teachers with higher levels of self-efficacy referred to a greater number of mastery experiences through both measures. This may speak to the power of mastery experiences in building self-efficacy, as noted by Bandura (1997).

Social persuasions

Through examining both the written reflections and the interviews, it became evident that social persuasions, specifically from colleagues, were the most referenced source of self-efficacy for all participants. This finding is consistent with research by Tschannen-Moran and Woolfolk Hoy (2007) who found that, when compared with more experienced teachers, novice or early career teachers are more reliant on the support of their colleagues.

The written reflections revealed that social persuasions were a key source of self-efficacy beliefs in the context of lesson planning. The majority of the reflections referred to colleagues, highlighting the significant role that colleagues play in the development of early career teachers' self-efficacy. Additionally, through the interviews, evaluative feedback from colleagues, in both formal and informal relationships, were the most referenced form of social persuasion that led to a sense of self-efficacy. This finding supports earlier research into the positive effects of mentoring programs in the lives of early career teachers (LoCasale-Crouch, Davis, Wiens, & Pianta, 2012; Woolfolk Hoy 2000).

It was pleasing to note that for some of the early career teachers, formal structures were in place to support their development in this crucial stage of their career. Schuck et al. (2017) had found these structures, including mentoring, to be inconsistent across schools and this was certainly the finding in this study with only one of the seven interviewees referring to a mentor. However, informal day to day interactions with colleagues had an enhancing effect

on their beliefs in their ability to teach. This aligns with earlier work of Le Cornu (2013) who pointed to the importance of relationships with colleagues within the school environment to support the development of early career teachers.

Mastery experiences

All interview participants referred to a mastery experience when accounting for their beliefs in their teaching ability. While there were references to other sources in these accounts, mastering a particular teaching skill, seemed to bolster the participants' sense of efficacy. The early career teachers in this study appeared to be focused on building productive relationships with students and these relationships served as the critical source of their sense of mastery. As noted by Le Cornu (2013), these relationships with students play a significant role in the development of early career teacher self-efficacy.

It is noteworthy that the participants with higher self-efficacy were able to describe mastery experiences in greater detail. This was the case when accounting for both their high level of certainty in their abilities as well as areas in which they were not as confident, for example, differentiation or poor classroom management. Participants with higher self-efficacy seemed to have a greater understanding of the importance of mastering a skill and the role this played in their level of self-efficacy. This was in contrast with those participants with low self-efficacy who supplied few examples of mastery sources and were not able to recount mastery of a skill in such detail.

These findings suggest that early career teachers with a low sense of self-efficacy have likely experienced fewer opportunities for mastery experiences. A close examination of the accounts of teachers with higher levels of self-efficacy provided some insight into why the sources of self-efficacy may have differed. For example, the early career teachers with high self-efficacy provided more detailed accounts of collegial support, which had specifically provided evaluative feedback on their practice. These experiences of collegial support have been linked to success in early career teaching (Buchanan et al., 2013; Schuck et al. 2017). These experiences may, in turn, enable a greater number of mastery experiences to occur. Without this level of collegial support, early career teachers may find it more challenging to understand what success looks like within the context of their classrooms.

Factors which inhibited self-efficacy

Factors which inhibited the self-efficacy of the sample of early career teachers primarily emerged through the interviews. These qualitative reports proved to be an important opportunity for the participants to provide rich narratives of the experiences of their day to day teaching lives. Most of the interviewed early career teachers expressed concern in their lack of confidence to differentiate the curriculum effectively within the classroom. While the participants could account for the development of their self-efficacy in building productive relationships with students, the same could not be said for their ability to differentiate. It was this area of their practice which resulted in low levels of confidence. Zee & Koomen (2016) found that more experienced teachers, with higher levels of self-efficacy, differentiated more frequently and were more positive about implementing such strategies to meet the needs of students in their classrooms. This has ramifications for students of all abilities and may be an area worthy of further investigation as teachers will avoid those aspects of their teaching in which they don't feel as confident (Skaalvik & Skaalvik, 2007; 2010).

Implications

Central to this research was a strong interest in understanding how these findings could support the development of strategies to support early career teachers. Findings from this study lead to several implications for educational practice and research.

This study links early career teacher self-efficacy to clear sources within the professional climate and therefore provides a guide to effectively build early career teachers' sense of efficacy. First, supportive colleagues who offer evaluative feedback have a powerful persuasive influence on early career teachers. However it appears that teachers may differ in their reaction to and ability to use such feedback. Informal and formal opportunities for early career teachers to reflect on feedback or constructive guidance on how to interpret feedback may be useful. Additionally, allowing early career teachers opportunities to observe their colleagues teach may prove powerful factors in the development of their self-efficacy.

While social persuasions were the most referenced source of self-efficacy in the interviews, those teachers with higher levels of self-efficacy were able to refer to mastery experiences when accounting for their higher levels of certainty in their ability. This suggests that in order

to support early career teachers in the development of their self-efficacy, leaders and colleagues may be best placed to enable early career teachers to identify mastery experiences within their practice. As noted by Hastings (2012), it may be of some benefit to early career teachers to have mentors or coaches to help them focus on areas in which they have demonstrated mastery. Understanding what mastery looks like and how to reflect on achievement of mastery may be critical.

It is somewhat surprising that teachers were not able to provide as many accounts of vicarious sources of their self-efficacy. The opportunity to regularly observe their colleagues in both formal and informal settings, combined with opportunities to talk through these classroom experiences would also be valuable in developing early career teacher self-efficacy beliefs. Although this source was mentioned least by the teachers, it may be important to provide a diversity of professional learning activities to early career teachers to support those who value these tangible learning examples. Providing specific guidance and support in establishing and sustaining a productive classroom environment may be an effective way for school leaders to assist early career teachers. It may also be worthwhile for future research to investigate the best ways to effectively build early career teachers' levels of confidence in differentiating the curriculum.

This study also raises several important implications for research in this field. First, the assessment of sources of self-efficacy was strongly guided by the recommendations of Labone (2004) and Morris et al. (2016). The prompt questions for written accounts employed in this study, yielded sufficient data to support content analysis of the sources of self-efficacy. Second, the interviews which also aligned with the recommendations of Wheatley (2005) and Wyatt (2014), supplied detailed descriptions of experiences, which both supported and undermined the teachers' sense of efficacy. Both research techniques offer considerable promise in efforts to identify the sources of teacher self-efficacy.

Limitations and Future Research

There are a number of important limitations in this study. First, the study was purposively limited to a sample of early career teachers in the first five years of their career. This was beneficial in that it constrained the sample to a population of interest but it seems likely that the sources of self-efficacy develop considerably within these five years. For example, some

early career teachers were able to provide a more nuanced 'time line' of the development of their self-efficacy over several years or teaching placements. A finer grained understanding of sources or the point at which a newly graduated teacher's self-efficacy declines, may require larger samples of teachers in the first year of teaching, for example.

The study was further limited by a relatively small sample size. However, this was deemed appropriate for the purposes of this exploratory study. Closer scrutiny of the initial research design suggests that participant recruitment was discouraged by the longer term nature of the study and multiple diary entries. The secondary recruitment approach to two informal, online professional learning networks yielded a stronger response. As both of these are self-selected online professional learning networks, it is possible that the sample of early career teachers were perhaps more, or even less, efficacious as they were members of forums designed to support those seeking professional learning and guidance. As such, the generalisability of these findings to the broader population of early career teachers will need to be assessed in further research with larger samples.

The nature of this research project captured early career teachers' thoughts on the sources of their self-efficacy beliefs at one moment in time. Future research could investigate the development of early career teachers' self-efficacy over a longer period of time, using the briefer self-report tool that was effective in the second recruitment phase of this study. In this regard, it would be of interest to investigate the development and sources of self-efficacy at several points, each year of the first five years of a teacher's career.

Conclusion

The current study aimed to understand the sources of self-efficacy among a sample of early career teachers. The study results found that, for this sample of early career teachers, social persuasion and mastery experiences were significant sources in the development of their teaching self-efficacy. This is consistent with the limited research in this area.

Through learning which events, experiences and messages shape the efficacy beliefs of early career teachers, school leadership and colleagues can gain valuable insights into the ways to help improve those beliefs. This may, in turn, influence the outcomes for both early career teachers and their students.

In conclusion, this exploratory study has demonstrated that the professional school climate can have a positive effect on the development of early career teachers' self-efficacy. It is recommended that a larger-scale study be conducted to investigate the development and sources of early career teachers' self-efficacy throughout the first five years of a career.

References

Ashton, P., & Webb, N. (1986), *Making a Difference: Teacher Efficacy and Student Achievement*, Monogram, Longman, White Plains, New York.

Australia Parliament House of Representatives Standing Committee on Education and Vocational Training. (2007). *Top of the class: report on the inquiry into teacher education*, House of Representatives Standing Committee on Education and Vocational Training, Canberra, viewed 21 Jul 2017, <http://www.aph.gov.au/Parliamentary_Business/Committees/House_of_Representatives_Committees?url=evt/teachereduc/report.htm>.

Aydin, S., Demirdögen, B., & Tarkin, A. (2012). Are they efficacious? Exploring pre-service teachers' teaching efficacy beliefs during practicum. *The Asia-Pacific Education Researcher, 21*(1), 203-213.

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioural change. *Psychological Review*, 84, 191-215.

Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. (1997). *Self-Efficacy: The Exercise of Control*. New York: W.H. Freeman.

Bandura, A. (2006). Guide for constructing self-efficacy scales. In F. Pajares & T. Urdan (Eds.). *Self-efficacy beliefs of adolescents*. (Vol. 5., pp. 307-337). Greenwich, CT: Information Age Publishing.

Bruce, C.D., Esmonde, I., Ross, J., Dookie, L., & Beatty, R. (2010). The effect of sustained classroom-embedded teacher professional learning on teacher efficacy and related student achievement. *Teaching and Teacher Education, 26,* 1598-1608.

Buchanan, J., Prescott, A., Schuck, S., Aubusson, P., Burke, P., & Louviere, J. (2013). Teacher Retention and Attrition: Views of Early Career Teachers. *Australian Journal of Teacher Education, 38*(3).

Chacon, C.T. (2005). Teachers' perceived efficacy among English as a foreign language teachers in middle schools in Venezuela. *Teaching and Teacher Education, 21*(3), 257-272.

Chan, D.W. (2008). General, collective and domain-specific teacher self-effiacy among Chinese prospective and in-service teachers in Hong Kong. *Teaching and Teacher Education, 24*(4), 1057-1069.

Creswell, J.W. (2012). *Educational Research: Planning, Conducting and Evaluating Quantitative and Qualitative Research*. Boston: Pearson Education.

Ewing, R., & Smith, D. (2003). Retaining quality beginning teachers in the profession. *English Teaching: Practice and Critique,* 2(1), 15-32.

Ewing, R., & Manuel, J. (2005). Retaining quality early career teachers in the profession: new teachers narratives. [online]. Change: Transformations in Education; v.8 n.1 p.1-16; May 2005. Availability: <http://search.informit.com.au.simsrad.net.ocs.mq.edu.au/fullText;dn=153838;res=AEIPT> ISSN: 1441-9319. [cited 21 May 16].

George, S., Richardson, P., & Dorman, J. (2015). Teacher self-efficacy: A thriving area of research. In C. M. Rubie-Davies, J.M. Stephens & P. Watson. (Eds.), *The Routledge international handbook of social psychology of the classroom*. (pp. 350-360). London: Routledge, Taylor & Francis Group.

Hastings, P. (2012). Early Career Teachers' Self-Efficacy for Balanced Reading Instruction. *Australian Journal of Teacher Education, 37*(6).

Hay Group. (2014). *Building the right foundation: Improving teacher induction in Australian schools*, Australian Institute for Teaching and School Leadership, Melbourne.

Henson, R. K. (2002). From adolescent angst to adulthood: Substantive implications and measurement dilemmas in the development of teacher efficacy research. *Educational Psychologist, 37*(3), 137–150.

Jensen, B., Sandoval-Hernandez, A., Knoll, S., & Gonzalez, E.J. (2012). *The Experience of New Teachers: Results from TALIS 2008,* OECD Publishing. *http://dx.doi.org/10.1787/9789264120952-en*

Johnson, B., Down, B., Le Cornu, R., Peters, J., Sullivan, A., Pearce, J., & Hunter, J. (2010). Conditions that support ECT resilience, paper presented at the Australian Teacher Education Association Conference, Townsville, 4-7th July.

Kitching, K., Morgan, M., & O'Leary, M. (2009). It's the little things: exploring the importance of commonplace events for early career teachers' motivation. *Teachers and Teaching*, *15*(1), 43-58.

Klassen, R.M., & Chiu, M. M., (2010). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology*, *102*(3), 741-756.

Klassen, R.M., Tze, V.M.C., Betts, S.M., & Gordon, K.A. (2011). Teacher efficacy research 1998 – 2009: signs of progress or unfulfilled promise? *Educational Psychology Review*, *23*, 21-43.

Labone, E. (2004). Teacher efficacy: maturing the construct through research in alternative paradigms. *Teaching and Teacher Education*, *20*, 341-359.

Le Cornu, R. (2013). Building Early Career Teacher Resilience: The Role of Relationships. *Australian Journal of Teacher Education, 38*(4), 1-16.

LoCasale-Crouch, J., Davis, E., Wiens, P., & Pianta, R. (2012). The role of the mentor in supporting new teachers: Associations with self-efficacy, reflection, and quality. *Mentoring and Tutoring: Partnership in Learning*, *20* (3), 303-323.

Locke, T., Whitehead, D., & Dix, S. (2013). The impact of writing project professional development on teachers self-efficacy as writers and teachers of writing. *English in Australia, 48* (2), 55-69.

Manuel, J. (2003). 'Such are the ambitions of youth': Exploring issues of retention and attrition of early career teachers in New South Wales. *Asia Pacific Journal of Teacher Education, 31*(2), 139-151.

Mayer, D., Allard, A., Bates, R., Dixon, M., Doecke, B., Kline, J., Kostogriz, A., Moss, J., Rowan, L., Walker-Gibbs, B., White, S. & Hodder, R. (2015). *Studying the effectiveness of teacher education - Final report*, Deakin University, Geelong.

McKenzie, P., Kos, J., Walker, M., Hong, J. & Owen, S. (2008). Staff in Australia's schools 2007. Melbourne: Australian Council for Educational Research.

McKenzie, P., Rowley, G., Weldon, P. R., & Murphy, M. (2011). Staff in Australia's schools 2010. Melbourne: Australian Council for Educational Research.

Morris, D.B., Usher, E.L., & Chen, J.A. (2016). Reconceptualising the sources of teaching self-efficacy: a critical review of emerging literature. *Education Psychology Review*. doi:10.1007/s10648-016-9378-y

Mulholland, J. & Wallace, J. (2001). 'Teacher induction and elementary science teaching: enhancing self-efficacy'. *Teaching and Education*, 17, 243-261.

NSW Department of Education. (2016). *Beginning teachers support funding policy*. Available from https://education.nsw.gov.au/policy-library/policies/beginning-teachers-support-funding-policy

NSW Education Standards Authority. (2016). *Policy for Accreditation at Proficient Teacher*. Available from http://educationstandards.nsw.edu.au/wps/wcm/connect/f0eefc0d-adb9-4f03-b254-8d3df4e5e3a0/NESA+Policy+for+Accreditation+at+Proficient+Teacher.pdf?MOD=AJPERES&CVID=

Organisation for Economic Co-operation and Development (OECD). (2005). Teachers matter: Attracting, Developing and Retaining Effective Teachers. Paris: OECD

Organisation for Economic Co-operation and Development (OECD). (2009). Key Factors in Developing Effective Learning Environments: Classroom Disciplinary Climate and Teachers' Self- Efficacy, in *Creating Effective Teaching and Learning Environments: First Results from TALIS*, OECD Publishing. http://dx.doi.org/10.1787/9789264068780-9-en

Organisation for Economic Co-operation and Development (OECD). (2012). What can be done to support new teachers? *Teaching in Focus, 2*, *1-4.*

Organisation for Economic Co-operation and Development (OECD). (2014). *TALIS 2013 Results: An International Perspective on Teaching and Learning*, TALIS, OECD Publishing. http://dx.doi.org/10.1787/9789264196261-en

Pajares, F. (1996). Self-Efficacy Beliefs in Academic Settings, *Review of Educational Research, 66(4),* 543-578.

Pajares, F. (1997). Current directions in self-efficacy research. In H.W. Marsh, R.G. Craven & D.M. McInerney (Eds.), *International advances in self research* (pp. 1-49). Greenwich, CT: Information Age.

Palmer, D. (2011). Sources of efficacy information in an inservice program for elementary teachers. *Science Education, 95* (4), 577-600

Phan, N.T.T., & Locke, T. (2015). Sources of self-efficacy of Vietnamese EFL teachers: a qualitative study. *Teaching and Teacher Education, 52*, 73-82.

Schuck, S., Aubusson, P., Buchanan, J., & Russell, T. (2012). *Beginning Teaching: Stories from the Classroom*. DOI 10.1007/978-94-007-3901-7_1, © Springer Science+Business Media Dordrecht 2012

Schuck, S., Aubusson, P., Buchanan, J., Varadharajan, M., & Burke, P.F. (2017). The experiences of early career teachers: new initiatives and old problems. *Professional Development in Education*. DOI: 10.1080/19415257.2016.1274268

Siwatu, K.O. (2007). Preservice teachers' sense of preparedness and self-efficacy to teach in America's urban and suburban schools: Does context matter? *Teaching and Teacher Education 27* (2), 357-65.

Skaalvik, E.M., & Skaalvik, S. (2007). Dimensions of teacher self-efficacy and relations with strain factors, perceived collective teacher efficacy, and teacher burnout. *Journal of Educational Psychology, 99*, 611-625.

Skaalvik, E.M., & Skaalvik, S. (2010). Teacher self-efficacy and teacher burnout: A study of relations. *Teacher and Teacher Education, 26,* 1059-1069.

Teddlie, C. & Tashakkori, A. (2009). *Foundations of Mixed Methods Research*. Thousand Oaks, CA: Sage.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: capturing an elusive construct. *Teaching and Teacher Education, 17*, 783 – 805.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education, 23*, 944-956.

Tschannen-Moran, M., Woolfolk Hoy, A., & Hoy, W.K. (1998). Teacher Efficacy: Its meaning and measure. *Review of Educational Research, 68,* 202-248.

Wheatley, K.F. (2005). The case for reconceptualizing teacher efficacy research. *Teaching and Teacher Education, 21* (7), 747-766.

Wolters, C., & Daugherty, S.G. (2007). Goal structures and teachers' sense of self-efficacy: their relation and association to teaching experience and academic level. Journal of Educational Psychology, 99: 181-193.

Woolfolk Hoy, A. (2000). *Changes in Teacher Efficacy During the Early Years of Teaching*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Woolfolk Hoy, A., & Burke Spero, R. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and Teacher Education*, *21*, 343-356.

Wyatt, M. (2014). Towards a re-conceptualization of teachers' self-efficacy beliefs: tackling enduring problems with the quantitative research and moving on. *International Journal of Research and Method in Education, 37*(2), 166-189.

Zee, M., & Koomen, H.M.Y. (2016). Teacher self-efficacy and its effects on classroom processes, student academic adjustment, and teacher well-being: A Synthesis of 40 Years of Research. *Review of Educational Research DOI: 0034654315626801.*

Zeldin, A.L & Pajares, F. (2000). Against the Odds: Self-efficacy Beliefs of Women in Mathematical, Scientific and Technological Careers. *American Educational Research Journal*, *37* (1), 215-246.

Appendix A. Teacher Self-efficacy

Teachers' Sense of Efficacy Scale[1] (long form)

Teacher Beliefs	How much can you do?								
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1. How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How well can you respond to difficult questions from your students ?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How much can you do to foster student creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
13. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
14. How much can you do to improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17. How much can you do to adjust your lessons to the proper level for individual students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
19. How well can you keep a few problem students form ruining an entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
20. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21. How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
22. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
23. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24. How well can you provide appropriate challenges for very capable students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Appendix B. Scoring Teacher Self Efficacy Scale

Directions for Scoring the Teachers' Sense of Efficacy Scale[1]

Developers: Megan Tschannen-Moran, College of William and Mary
Anita Woolfolk Hoy, the Ohio State University.

Construct Validity

For information the construct validity of the Teachers' Sense of Teacher efficacy Scale, see:

> Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education, 17,* 783-805.

Factor Analysis

It is important to conduct a factor analysis to determine how your participants respond to the questions. We have consistently found three moderately correlated factors: *Efficacy in Student Engagement, Efficacy in Instructional Practices*, and *Efficacy in Classroom Management*, but at times the make up of the scales varies slightly. With preservice teachers we recommend that the full 24-item scale (or 12-item short form) be used, because the factor structure often is less distinct for these respondents.

Subscale Scores

To determine the *Efficacy in Student Engagement, Efficacy in Instructional Practices*, and *Efficacy in Classroom Management* subscale scores, we compute unweighted means of the items that load on each factor. Generally these groupings are:

Long Form

Efficacy in Student Engagement:	Items 1, 2, 4, 6, 9, 12, 14, 22
Efficacy in Instructional Strategies:	Items 7, 10, 11, 17, 18, 20, 23, 24
Efficacy in Classroom Management:	Items 3, 5, 8, 13, 15, 16, 19, 21

Short Form

Efficacy in Student Engagement:	Items 2, 3, 4, 11
Efficacy in Instructional Strategies:	Items 5, 9, 10, 12
Efficacy in Classroom Management:	Items 1, 6, 7, 8

Appendix C. Sources of Teacher Self-efficacy

Teacher: Class:

Please rate how certain you are that you can do the things discussed below by writing the appropriate number. Your answers will be kept strictly confidential and will not be identified by name.

Rate your degree of confidence by recording a number from 0 to 100 using the scale given below:

0 10 20 30 40 50 60 70 80 90 100

Cannot do at all — Moderately certain can do — Highly certain can do

Considering the lesson you have just planned, how certain are you that you can;	0 - 100
effectively execute the planned instructional practices?	_____
engage your students in the planned learning activities?	_____
manage the classroom during the planned lesson?	_____

Would you please complete a reflection, elaborating on your reasons for the individual ratings above. In your reflection you might consider the following questions:

- Are there any specific teaching experiences that have contributed to your ratings for the upcoming lesson?
- Have you received any information from peers, students, parents or school leadership that have contributed to any of the ratings?
- Have you seen any teaching practices modelled that have contribute to the ratings above?
- Are there any other factors or experiences which have led to these ratings?

Appendix D. Adapted Journal for the Online Survey

For this section of the survey, we would like you to consider the lessons you have planned for the coming week.

Use the sliding scale to answer each question.

Considering the lessons you have planned for the coming week, how certain are you that you can;

	0	10	20	30	40	50	60	70	80	90	100
effectively execute the planned instructional practices?											
engage your students in the planned learning activities?											
manage the classroom during the planned lessons?											

Would you please elaborate on your reasons for these ratings above by answering the following questions.

1. Are there any specific teaching experiences that have contributed to your ratings for the upcoming lessons?

2. Have you received any information from colleagues, students, parents or school leadership that have contributed to any of the ratings above?

3. Have you seen any teaching practices modelled that have contributed to the ratings above?

4. Are there any other factors or experiences which have led to these ratings?

Appendix E. Interview Questions

Typical interview questions

- When you are thinking about yourself as a teacher, what experiences contributed to your decision to pursue teaching as your career?

- Now that you are a teacher, what do people say to you about your work as a teacher?

- Do you get any other sorts of 'messages' about your work as a teacher? e.g. feedback or signals from anybody or any other sources?

- Are there any teaching experiences which you would consider have been influential in shaping your beliefs about your ability to perform your role as a teacher?

Typical tailored question

- I noted from your responses that you are quite certain of your ability to *manage your classroom*. Can you talk to me about any experiences, feedback or messages you have received that have led to this belief?

- I noted from your responses that you were you were not as certain of your ability to *engage students in their learning*. Can you talk to me about any experiences, feedback or messages you have received that have led to this belief?

Appendix F. Participant information and Consent Form

Name of Project: Teacher beliefs and experiences in the first five years of teaching.

This study is seeking to investigate the factors that influence early career teachers' beliefs and practice, in the context of day to day teaching experiences. All early career teachers, who are in the first five years of their career, are invited to participate in the study. This study is being conducted by Amy Van Arkkels (amy.van-arkkels@students.mq.edu.au), as a part of her Master of Research degree, under the supervision of Dr Anne McMaugh (9859 8663, anne.mcmaugh@mq.edu.au) and Dr. Norman McCulla (9850 8650, norman.mcculla@mq.edu.au) from Macquarie University.

If you decide to participate, you will be asked to complete the following survey regarding your beliefs about teaching in everyday classroom activities. We would also like to understand your day to day experiences of teaching, and learn about the factors that influence your beliefs and lesson planning in the classroom e.g. do you chat with other colleagues and draw inspiration? This survey will take approximately 20 minutes to complete.

At the end of the survey you will be invited to participate in an interview. This is the only time in the project you will be required to voluntarily identify yourself. This interview is optional, you are not obliged to participate and there will be no consequence for choosing not to participate because your identity is protected. The purpose of the interview is to learn more about the factors affecting early career teachers in their day to day classroom teaching. This interview will take approximately 20 minutes and will take place at a time and venue you nominate.

In conducting this research we hope to learn more about ways to support early career teachers and build positive beliefs about teaching. When completing the survey, you may experience a range of typical emotional responses to reflection such as feeling satisfied about your work or feeling that you could change something or disappointment that something may not work so well in class.

Your responses to this survey will remain anonymous, any qualitative data included in reports will be non-identifiable and non-identifiable quotations in the final report will be attributed to pseudonyms. A report about the study will be written and submitted to Macquarie University in the form of a thesis for the Master of Research program. A summary of this report will be made available to you. Aspects of the study may also be published in an academic journal or presented at an academic conference.

Participation in this study is entirely voluntary. You are under no obligation to participate and no adverse consequences will arise from choosing not to participate. If you do choose to participate, you will be given the opportunity to withdraw at any time without consequence.

If you have any questions about participating in this study, please contact Amy Van Arkkels (amy.van-arkkels@ students.mq.edu.au), Dr Anne McMaugh (9859 8663, anne.mcmaugh@mq.edu.au) or Dr Norman McCulla (9850 8650, norman.mcculla@mq.edu.au).

I have read and understand the information above and any questions I have asked have been answered to my satisfaction. I agree to participate in this study, knowing that I can withdraw from further participation in the research at any time without consequence.

☐ Please click or select this button to indicate your consent to participate in the project.