Teacher Efficacy in High Performing Teachers: Barriers and Enablers for New Graduates

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Abstract: Teachers with a high sense of self-efficacy are more resilient to difficulties, experience greater job satisfaction and have higher expectations of their students. This study investigated teacher self-efficacy in high performing teachers at two points in their development: 1) as preservice teachers, halfway through their undergraduate degree using the Teacher Self-Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) 2) as new graduates through a qualitative interview focused on efficacy. These 24 teachers participated in the National Exceptional Teaching for Disadvantaged Schools program (NETDS) at Deakin University during their BEd (Primary) degree. They demonstrated lower self-efficacy than their peers in Efficacy for Instructional Strategies (TSES). As graduates, however, they presented as confident teachers with high self-efficacy. It appears that their studies, their placements in low socioeconomic schools and as well mentored new graduate teachers, had helped make them into effective teachers who were ready for their new profession.

Introduction

This study explored self-efficacy in a group of high performing Preservice (PST) and graduate teachers. It examined their self-efficacy at two points in their development: 1) as PSTs halfway through their undergraduate degree and 2) as new graduates in their first year of teaching. Its purpose was to explore the impact of a teacher education program (National Exceptional Teaching for Disadvantaged Schools, NETDS) designed to prepare high preforming PST teachers to work in disadvantaged or low Socioeconomic Status (SES) schools on graduate teacher self-efficacy. It also identified the efficacy enablers and barriers encountered in their new school workplace following graduation.

Defining Self-efficacy

Self-efficacy is a dimension of the self that relates to an individual's belief about their ability to perform tasks successfully (Duchense & McMaugh, 2019). It is often referred to as our *can do* judgment of self and it influences how we feel, think and act (Bandura,1997). The construct of self-efficacy grew out of Bandura's sociocognitive theory (Bandura, 1977). Bandura (1986) defines self-efficacy as representing a person's "judgement of their capabilities to organize and execute courses of action to attain designated types of performances" (p.391). This concept is particularly well aligned to the work of teachers. Bandura himself applied his theory to teachers and their work by developing a teacher

efficacy scale (1997). His theory predicts that teachers' sense of self-efficacy will relate to the effort that they invest in teaching, the goals they set for themselves and their students, their persistence when things do not go to plan and their level of resilience in the face of challenging classroom scenarios.

Bandura (1986, 1997) identified four sources of self-efficacy. These are aligned with the work of teachers, as follows:

1. Mastery experiences: experiencing success as a teacher, personal teaching accomplishments, beliefs about their own strengths and weaknesses as a teacher.
2. Vicarious experiences: observing and reflecting on other teaching models. Vicarious experiences can be direct (observing other teachers) and indirect (learning from books or discussion), and are thought to be most effective if the models are closely identified with by the teacher.
3. Verbal persuasion: verbal interactions that teachers have with others such as mentors and school leadership about their teaching performance, feedback received from students and mentor teachers.
4. Physiological arousal: the emotions associated with teaching, the joy or pleasure when a lesson goes well or stress and anxiety when a lesson is going poorly or anticipated to go poorly.

Self-efficacy in Teachers

Research suggests that self-efficacy in teachers increases their persistence in working with challenging students and has been shown to impact on teacher enthusiasm, pedagogical practices, (Skaalvik & Skaalvik, 2007) and teachers' perceptions of their environmental opportunities and impediments (Skaalvik & Skaalvik, 2014). Teachers with a high sense of self-efficacy are more resilient to difficulties, experience greater job satisfaction and have higher expectations of their students (Caprara et al., 2006; Soto & Rojas, 2019). Levels of self-efficacy in teachers are of great relevance for teachers working in low SES schools. Studies have found that teachers with a high sense of self-efficacy tend to be less critical of students who are struggling academically, more inclusive, and more accepting of students from disadvantaged backgrounds than teachers with a low sense of self-efficacy (Klassen et al, 2011; Šafránková & Hrbáčková, 2016).

Teachers who approach their classroom with a high level of self-efficacy are well positioned to impact student outcomes, especially in low SES school communities. A metanalysis completed by Klassen and Tze (2014) with 43 studies indicated a strong relationship between teachers' self-efficacy and teacher performance and a modest but significant relationship between teacher self-efficacy and achievement levels in students. Only a very modest relationship was observed between teacher personality and teacher performance leading them to conclude that their findings support the idea that "Teachers are made, not born" (p 73). This finding is pertinent to the present study which explores self-efficacy in a group of graduate teachers who were selected into a special program of teacher preparation. The NETDS program (Burnett & Lampert, 2019; Ailwood & Ford, 2017) aims to shape and develop new teachers who feel well prepared and effective teaching in low SES schools. This study investigates the self-efficacy of this group as both PSTs and as new graduates. It also explores the perceived barriers and enablers to perceived efficacy for this group in their destination employment schools as graduate teachers.

Efficacy beliefs are considered to be most malleable early in a teacher's career. According to Bandura (1997), mastery experiences are thought to be the most powerful, with a great capacity to mould a new teacher's belief about their own self-efficacy. This suggests

that both the professional experience placements of PST teachers and the early experiences of new graduate teachers may be powerful in shaping the self-efficacy of new teachers. Self-efficacy can be fostered in graduate teachers who are well supported by positive mentors who tell their mentees, "*You can do this*!" (Martin & Mulvihill, 2019, p 196). In contrast, efficacy beliefs in established teachers appear to be much more difficult to change (Tschannen-Moran, Woolfolk Hoy & Hoy, 1998).

Sense of self-efficacy might also be enhanced or diminished by the environment, such as the school climate, in which the teacher is teaching (Hoy & Woolfolk, 1993). Preservice teachers may be shielded from the full impact of their school climate during placements because they are not employed in the school and do not have full responsibility for a class. Consequently, new graduate teachers may only experience the full impact of both school culture and climate with sole responsibility for a class for the first time as a new graduate. Consequently, they are likely to recalibrate their own self-efficacy in their first year of teaching (Clark et al., 2015). Mastery experiences, the school setting, school leadership and mentoring encountered by graduates in that first year can impact this sense of efficacy with potential long-lasting effects on both the teachers and their students (Hoy & Woolfolk, 1993; Hoy & Spero, 2005; Skaalvik & Skaalvik, 2014; Martin and Mulvihill, 2019).

Self-efficacy in Preservice Teachers

Preservice teachers (PSTs) have been consistently found to have a strong sense of self-efficacy (Hardy et al., 2015). Self-efficacy is particularly high at the beginning of their courses and reduces with greater exposure to the classroom (Pendergast et al., 2011). Weinstein (1989) described these high levels of self-efficacy as "unrealistic optimism" (p 54). Dassa and Nichols (2019) compared PST subject specific self-efficacy in regard to pedagogical content knowledge with judgements made by both their school-based supervisors and University supervisors. They found that PSTs were much more confident about their content knowledge and capacity to teach it than their evaluation by either their school based or university supervisors. PSTs frequently commented that they were in no need of further preparation while their supervisors were acutely aware of the gaps in skills and knowledge in their mentees. These findings raise concerns about PST openness to reflection on teaching practice in the face of this *unrealistic optimism*. Self-efficacy in PSTs appears to be a source of tension; on one hand teacher educators aim to develop high levels of self-efficacy in their students, culminating in confident, resilient graduates, while on the other hand they worry that PSTs don't seem to know what they don't know, setting them up for a potentially rocky first year of teaching.

Measuring Self-efficacy in Teachers and Preservice Teachers
Quantitative Approaches

Self-efficacy has been measured in teachers using a variety of tools including Gibson and Dembo's Teacher Efficacy Scale (1984), Bandura's assessment of Instructional Efficacy (1997), Norwegian Teacher Self-Efficacy Scale (Skaalvik & Skaalvik, 2014) and Teacher Self-Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001). The Teacher Self-Efficacy Scale (TSES) has become a widely used tool (Tschannen-Moran & Woolfolk Hoy, 2001). This 24-item scale has high validity and reliability (Klassen, et al, 2009; Wolters & Daugherty, 2007) and has been used in studies of PST teachers (Weinstein, 1989), new graduates and experienced teachers (Tschannen-Moran & Hoy, 2007).

Qualitative Approaches

Several studies have adopted a more qualitative approach to exploring efficacy in teachers, utilizing open ended survey questions, interviews and focus groups to understand teacher sense of self-efficacy through probing questions and an opportunity to expand on their efficacy beliefs. The "Studying the Effectiveness of Teacher Education" (SETE) study (Mayer et al, 2017) tracked 5000 graduate teachers and their 1000 principals over 4 years. A striking finding of this study was that 75% of these graduates would recommend their teacher education to others and they also felt well prepared and effective as beginning teachers. When these new teachers reflected on their teacher education courses, they indicated that the time spent in schools during ITE courses, their professional experience, was the most influential component of their teacher preparation and had the biggest impact on their sense of self-efficacy. This finding is consistent with Bandura's (1997) contention that mastery plays the biggest role in the development of self-efficacy.

The Longitudinal Teacher Education and Workforce Study (LTEWS) also explored the efficacy beliefs in new graduate teachers using a qualitative approach (Mayer et al, 2013). This large national study included three cohorts of new teachers, each with more than 2000 graduates, from across Australia. More than 80 per cent of these new graduate teachers rated themselves as effective in all of the Australian Professional Standards for Teachers (AITSL, 2014).

The SETE and LTEWS studies identified high levels of self-efficacy in new graduate teachers using a combination of survey and interview data. Several studies which have adopted a more quantitative approach and used the Teacher Self Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) have shown that once teacher candidates begin teaching careers, their teacher self-efficacy often decreases (Clark et al., 2015; Hoy & Spero, 2005) in comparison to scores on the TSES as PSTs. These findings suggest that the first year as a graduate teacher might be a reality check as well as a formative period for the establishment of teacher efficacy. Self-efficacy in beginning teachers is an important investigative focus as new graduates who commence their career with high levels of self-efficacy are less likely to burn out and leave the profession (Dassa & Nichols, 2019).

The present study brings together two sets of self-efficacy data gathered from a cohort of preservice/graduate teachers who participated in the NETDS program at Deakin University. Self-efficacy was investigated when the study participants were PST teachers and graduate teachers in their first year of teaching.

Improving Teacher Efficacy in Disadvantaged Schools

Attracting and sustaining effective teachers in disadvantaged schools has been a focus for schools, policy makers and researchers for more than a decade (Allen et al., 2018; Dawson & Shand, 2018; Rice, 2010; Rice et al, 2018). Students in vulnerable communities have been clearly identified as needing additional resources and highly effective teachers (Gonski et al, 2011; Cochran-Smith, et al, 2016). Difficulties with retention of teachers in disadvantaged schools are well known and has spawned a number of special programs including Teach For Australia (2011), Teach Next (2012) and the NETDS Program (Burnett & Lampert, 2019). These programs have focussed on identifying high performers and providing them with a specially tailored program to build their skills to work with disadvantaged learners, often in hard to staff schools. Although these three programs differ significantly in terms of ideology and conceptualisation, they are predicated on the idea that

these groups of teachers will begin their teaching journey with enhanced teaching skills alongside a strong sense of their efficacy in the classroom.

The National Exceptional Teaching for Disadvantaged Schools (NETDS) program

During the second year of their studies in the Bachelor of Education (Primary) course at Deakin University, very high performing PST teachers are identified on the basis of their academic results and successful placements and are invited to join the NETDS program. Not all of the identified high performing PSTs who are invited to join the program take up the offer. Those that do so are usually driven by a strong commitment to social justice and making a difference. The NETDS participants complete the same degree as the wider cohort of other PST teachers in the Bachelor of Education (Primary) course, however, in Year 3 and 4 they complete all their placements in low SES schools. In addition, they complete one of their third-year units through the lens of poverty, learning about family context, relationship building, the impact of trauma, and supporting learners in vulnerable communities. The group comes together after each of their low SES school placements to share their experiences. We call this experience a *yack after prac*. These reflection opportunities use a *Community of Practice* model (Lave & Wenger, 1991) to build group cohesion and the *yacks* provide PSTs with opportunities for vicarious learning as they swap stories and share teaching strategies with each other (Burnett & Lampert, 2019).

This study focuses on the self-efficacy of this group, firstly as PSTs (Phase 1) and then as new graduates in their first year of teaching (Phase 2). It addresses the following research questions:
1. Are there any differences in self-efficacy between the NETDS group and the wider Bachelor of Education (Primary) cohort as measured by the TSES?
2. How effective do NETDS graduates feel in their first year of teaching?
3. What are the most significant barriers and enablers to teacher efficacy for new NETDS graduates?

Method

This project focused on self-efficacy in participants in the NETDS program at two time points, first, when these specially selected PSTs commenced participation in the NETDS program (midway through their 4-year BEd (Primary) degree) and second, when the NETDS participants were new graduate teachers. Data related to self-efficacy that was collected from two separate studies and has been brought together for this paper. This research project had full ethics approval both from Deakin University and from the host university, Queensland University of Technology (Ethics Approval No: 2014-264).

Participants

Participants in this study came from the first two years of the implementation of the NETDS program at Deakin University in the Bachelor of Education (Primary) program. The first cohort consisted of 23 PSTs selected from a total cohort of 150 students in the course. Cohort two consisted of 17 PSTs selected from a total cohort of 133 students in the BEd Course. In Phase 1 of the study all of the NETDS program participants completed the Teacher Self-Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001). Sixty-eight

non NETDS BEd (Primary) PSTs (30 in Year 1 and 38 in Year 2; 24% of the total cohort) completed the TSES. In Phase 2 of the study 12 of the 23 NETDS graduates in Cohort 1 and 12 of the 17 in Cohort 2 participated in interviews. These 24 NETDS participants were very similar in demographics to the larger BEd (Primary) cohort. Five of the 24 participants were mature age students and 19 had commenced their degree as Year 12 school leavers. Three were male and 21 were female. There were slightly more males in the broader BEd (Primary) cohort with 22% compared to 13% male NETDS graduates.

Phase 1

All participants in the NETDS program were invited to complete the Teacher Self-Efficacy Scale (TSES) (Tschannen-Moran & Woolfolk Hoy, 2001) prior to commencing in the NETDS program. This data was collected as part of a wider study with other Australian universities who were also implementing the NETDS program (Burnett & Lampert, 2019). For PSTs in the Deakin NETDS program, the TSES was completed at the beginning of their third year of study in their four-year undergraduate program. At this stage, PSTs had only completed two placements in schools and the NETDS group had not commenced any placements in low SES schools. Both the NETDS group and PSTs in the regular cohort in the undergraduate Bachelor of Education (Primary) program were invited to complete the TSES survey either via pen and paper (Cohort 1) or online (Cohort 2). Data presented here came from the first two cohorts of NETDS PSTs (40 participants in the year two cohorts combined) and is compared to 68 non-NETDS PSTs (two-year cohorts combined).

Materials and Instruments

Phase 1 of this study used a quantitative approach to assess the PSTs current levels of self-efficacy. The TSES is a valid and reliable tool which has been well researched with PST and early career teachers. PSTs in this study were invited to complete the survey in class by an academic who was not involved in the project (Cohort1) or via a link in an email (Cohort 2). These TSES surveys were anonymous. Consequently, individual participants could not be tracked and individual results from Phase 1 could not be tracked to Phase 2 of the study.

The Teachers' Sense of Efficacy Scale

The Long form of the Teachers' Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001) consists of 24 items each assessed along a continuum from 1 to 9, where 1 is "Nothing" and 9 is "A great deal". The long scale commences with the instruction, "Please respond to each of the questions by considering the combination of your current ability, resources, and opportunity to do each of the following in your present position." It has three subscales, each with 8 items (Instructional Strategies, Classroom Management and Student Engagement). It can be completed in 5 minutes. Sample items include:

Efficacy for Instructional Strategies

To what extent can you provide an alternative explanation or example when students are confused?
How much can you assist families in helping their children do well in school?

Efficacy for Classroom Management

How much can you do to get children to follow classroom rules?
How well can you keep a few problem students from ruining an entire lesson?

Efficacy for Student Engagement

How much can you do to get through to the most difficult students?
How much can you do to get students to believe they can do well in schoolwork?

Phase 2

Phase 2 reports on data collected as part of a separate study that was focused on the experiences of Deakin University NETDS graduates in their first year of teaching. It used a qualitative approach for data collection including interviews and focus groups to explore new graduates' experiences. The first two cohorts of the NETDS program were contacted via email at the beginning of their first year as a new graduate teacher and invited to participate in a research project. Twenty-four graduates from Cohort 1 and Cohort 2 of the NETDS program at Deakin University were interviewed as new graduate teachers approximately halfway through their first year of teaching. These NETDS graduates had secured teaching positions in a wide range of schools, including rural schools, in the state of Victoria and remote schools in the Northern Territory. Of these 24 graduates, 87.5% were teaching in low SES or socially disadvantaged schools, defined here as a school with an Index of Community Socio-Educational Advantage (ICSEA) of below 1000. A school's ICSEA (ACARA, 2010) is determined through both school and student factors including geographical location (remoteness), the proportion of Indigenous students, and parents' occupation and education. According to the Australian Curriculum Assessment and Reporting Authority (ACARA, 2010), the ICSEA median of 1000 is viewed as a benchmark. It is the median score for schools and can be used to differentiate disadvantaged and advantaged schools.

Each semi-structured interview was 30-40 minutes in duration. A set of questions (see Appendix A). were used to start the conversation and participants were encouraged to expand on their responses. Questions included a range of focus areas such how effective they felt as a new teacher, support received within their school, and how their studies and the NETDS program prepared them for becoming a new teacher. Each interview was video recorded, transcribed in full by a transcription agency and these transcripts were analyzed by both researchers. To analyse the interview data, we drew on qualitative grounded theory analysis methods (Glaser & Strauss, 1967; Strauss, 1987). Data from the interviews with first year graduates from the NETDS cohort (Cohort 1 & 2) were manually inductively analysed (Miles & Huberman, 1994) across cases to display and gradually reduce data to assist in identifying key themes. The data relating to each graduate's judgement about their efficacy as a new graduate teacher was read by each researcher to familiarise them with the data and to obtain a global perspective on their narrative. Each researcher then independently read and reread the transcripts highlighting significant elements which were developed as key coding categories.

All responses to interview questions (See Appendix A) which related to teacher efficacy were included in this process including both direct questions (Questions 2 & 3) and any other questions which indirectly elicited comments and responses related to self-efficacy. Responses to questions were repeatedly compared within and across the participants' transcripts, generating coding categories. These repeated sortings, codings, and comparisons characterising this grounded theory approach took place until saturation was reached (Strauss & Corbin, 1990). The categories that emerged from this process were assigned labels and the number of responses within each of these identified categories were counted.

Results
Phase 1

Participants completed the Teacher Self-Efficacy Scale (TSES) while they were PSTs at the beginning of their third year of study in their 4-year undergraduate teacher education program. Table 1 compares the results of the TSES for the NETDS groups (n=40) and the non NETDS (68) groups.

Teacher efficacy Subscale	Group	n	Mean Scale Score	Standard Deviation	T Test for independent samples	Significance
Instruction Scale	NETDS	40	51.00	11.46	-2.246	0.027
	Non-NETDS	68	55.06	7.33		
Classroom Management Scale	NETDS	40	52.03	10.61	-.938	n.s
	Non-NETDS	68	53.74	8.19		
Engagement Scale	NETDS	40	52.93	10.25	-1.052	n.s.
	Non-NETDS	68	54.71	7.28		

Table 1: Comparison of NETDS and Non NETDS on three scales of Teacher Efficacy (TSES)

All PSTs in this study had relatively high mean scores for each of the three teacher efficacy subscales. The non-NETDS cohorts had higher mean scores than the NETDS cohorts for all three subscales suggesting that the PSTs who had been invited to join the NETDS program had slightly lower self-efficacy than those who had not been invited to join the program. Table 1 shows that most of these differences were not statistically significant. It needs to be noted here that this scale was completed by both groups at the very beginning of third year just before they commenced their studies for the year. At this stage, the NETDS group had not commenced any placements in low SES schools and they had not commenced any special programming regarding working with vulnerable communities. One statistically significant difference did emerge. NETDS PSTs had a lower mean score on the Instruction Scale than the wider cohort, indicating that they had significantly lower self-efficacy than their peers in this aspect of teaching. The Instruction Scale includes items such as, *"To what extent can you craft good questions for your students?"* and *"How much can you use a variety of assessment strategies?"*

Phase 2

The response categories which emerged from the interview analysis were divided into positive categories (Enablers) and negative categories (Barriers). The *Enablers* are presented in Table 2 in ascending order from the most frequently mentioned to the least frequently mentioned. Table 2 also shows how the *Enablers* have been aligned with Bandura's (1997)

four sources of self-efficacy: mastery experiences, vicarious experiences, verbal persuasion and physiological responses.

Self-Efficacy Enablers	Mentoring and support from colleagues in the school	Own Confidence and Resilience	Previous experience on placement in disadvantaged schools	Planning and Organisation	Seeing progress in students	Forming strong relationships with students
No of graduates N =24	9	7	6	6	5	2
Links to sources of Self-Efficacy Bandura (1997)	Vicarious experiences Verbal persuasion	Mastery experiences	Mastery experiences	Mastery Experiences	Mastery experiences	Mastery experiences

Table 2: Self-Efficacy enablers: Key themes identified in interviews with NETDS program graduates

Self-Efficacy Enablers

All 24 participants referred to the way their experiences as new graduates had supported and enabled their sense of self efficacy. In total, 35 enabler responses were identified in the interview data. Some participants identified more than one enabler. All 24 participants identified at least one enabler which clearly aligned with Bandura's Mastery experiences (1997).

Mentoring and Support from Colleagues in the School

The new graduate teachers in this study talked about the way that the school had supported them to feel effective in their roles though mentoring and collegial support. This was the most frequently identified theme, with nine new teachers mentioning it in their interviews. These new teachers provided insights into the way they proactively made the most of mentors.
> *You've just got to take it on board and use your support. So, if I don't know something I'll go and ask my mentor. (Pat)*
> *I don't feel any concerns in my ability because I've had that support and I've had that feedback and it's been an easy process for me because of that. (Kate)*
One teacher specifically identified the well-defined mentoring and support structures which had been put in place in her school.
> *I guess this school has a really good framework. They've got a really good support network and a great framework where you can't really fail. (Deb)*
Deb's comment suggests she feels very well supported but her comment also raises the question of whether this could be at cost of reduced autonomy in the classroom.
These nine new teachers described the ways that their schools and their colleagues had helped to build their sense of self efficacy through Bandura's concept of *vicarious experiences*, that is, watching their mentors teaching and having opportunities to discuss what they had seen modelled. One described the way she had been coached with opportunities to watch her coach teach a lesson and then having the opportunity to teach that lesson herself. This group also identified the role that *verbal persuasion* (Bandura, 1997) played in the

consolidation of their self-efficacy. School mentors and colleagues provided them with ample positive feedback and *just in time* opportunities for discussion about their classroom teaching. Seven new NETDS graduates identified their own assessment of their skills and abilities, that is, their self-confidence as teachers as a significant enabler of their self-efficacy.

> *I feel like the kids have responded well to me and I've had lots of really good feedback from parents. I don't know, you always have your moments where you're like, what am I doing? Am I doing the right thing – but I think most of the time I've felt effective. (Sue)*

These graduates tell a story that strongly aligns with the concept of *mastery* (Bandura, 1997) as they practised their new profession in their own classrooms. These mastery experiences appear to have contributed to their sense of confidence in their own abilities and played a significant role in building their self-efficacy. Their sense of personal achievement came through very clearly in their interviews, although, at times, this group of graduates seemed a little surprised at how capable they felt in the classroom.

> *So, it turns out that I felt that I was actually able to contribute effectively and build a rapport with them. (Michelle)*
> *A lot more effective than what I thought I would be, probably. (Lisa)*

Previous Experience on Placement in Disadvantaged Schools

The challenging nature of the professional experience placements undertaken in low SES schools by this NETDS cohort during their teacher education course further highlights how mastery experiences can build teacher efficacy. Mary captures this in her comment about her belief in readiness to teach anywhere.

> *I think the school I had placement on was the third most disadvantaged school in Australia and it was very tough and then finishing that placement I felt like I could almost go into just any classroom and just deal with the pressures and be resilient (Mary)*

There is no doubt that the educational settings where most of the participants were teaching were very demanding, but this group felt well prepared and, as a consequence, seemed able to capitalise on their own mastery of the classroom to cope with the challenges they encountered.

> *If I hadn't have done it [NETDS] and just gone - my first year of teaching - gone into an environment like this, I think I would have freaked out. Especially dealing, I guess, with behavioural issues and thinking about not just the kids in school but their life outside of school – I think I would have really struggled and not known what to do at all. (Emily)*

Planning and Organisation

Six of the NETDS graduates described various aspects of the way their school were organised, the planning processes and the way this facilitated their effectiveness. The planning structures appeared to contribute to their sense of mastery within their classroom as part of their teaching team. School with well-defined processes and structures further enabled this aspect of mastery for these new graduates. It supported them to feel confident that they can do their job well.

> *It runs pretty smoothly. I guess because it is so structured I can just kind of follow the plan and I know how the school runs. (Kate)*

Like Deb, Kate's enthusiasm for "following the plan" may reflect the pressure that most new graduates experience in their first year of teaching but raises a question related to her autonomy in the classroom.

Seeing Progress in Students

Another aspect of mastery that was highlighted by five of the NETDS graduates was their capacity to engage students and monitor their progress. Five participants identified this as one of the ways they felt effective in their new classrooms.

I can capture some attention so I can really give a good intro or a hook and get kids excited about what's happening next and relaying that. (Pat)
I have really focussed my attention and I see that the work that I had done last year is paying off now. (Lana)

Forming Strong Relationships with Students

Two graduates mentioned the capacity to form strong relationships, another mastery experience that underpins these teachers' sense of self-efficacy. Given that relationship building had been a big focus on the NETDS program during their teacher education course, we may have anticipated more responses related to relationships, however, no specific question was asked to prompt to the discussion of this topic. It spontaneously emerged here as part of their explanation for how two graduates believed that they were effective as new graduates.

Own Confidence and Resilience

I think I'm pretty good at forming relationships with the students. (Nic)
I can kind of prepare myself and know how to react to the situations in the right way. (Peta)

Self-efficacy Barriers

Graduate interviews were interrogated for evidence of any barriers to self-efficacy, and these are presented in Table 3.

Self-Efficacy Barriers	Student outcomes and data measurement	Knowledge of Curriculum	No barriers identified	Work-life Balance and Time Management	Student Behaviour	Lack of structure and support in the School	Expectations of self too high
Number of participants	7	6	5	4	2	1	1

Table 3: Self-efficacy Barriers: Key Themes Identified in Interviews with NETDS Program

The analysis of the interviews identified only 26 barriers in total, with five participants who made no mention of any negative experiences or challenges that had undermined or impacted on their sense of self-efficacy as teachers. Nineteen participants identified aspects of their first year of teaching that had made them feel less effective in their new teaching roles

Student Outcomes and Data Measurement

Seven participants talked about their experiences with the datafication of schools and the intensified focus on student outcomes. They identified this as a pressure on them to perform and to be accountable to the data collected on their students. The public sharing of student data was evident in many of the schools visited for this research project, some with a data wall or data room which could be viewed by all of the staff. In some schools, student data was publicly displayed in classrooms. This data included literacy and numeracy test scores, and other assessments which were collected and displayed to show student progress and to set goals for learning. The graduates in this study had mixed feels about collecting and analysing progress data.

> *Sometimes it's hard to time manage and things and get the data done but then the times that I have seen the data, it's encouraging. (Michelle)*
> *I have my days. It's been pretty full-on, always busy, always on the laptop, marking or planning lessons. Yeah, the busyness of things, it's all worth it in the end, because they're achieving that growth that they need to achieve. (Lisa)*

Others were trying to combat the impact that data and lack of student progress had on their sense of efficacy in the classroom. Emily captures this well in her comment below:

> *Because a lot of these kids that I've got have been stuck trying to learn the same thing for 4 years and they still haven't managed to grasp it. So, I think I need to be a little bit easier on myself. (Emily)*

Emily's comments may give us insight into her growing awareness of her school environment and how student progress is viewed in her school setting. It is possible that she is learning to match her own expectations with those of her colleagues. If this is true it may be quite a significant barrier to her future efficacy as a teacher.

Knowledge of Curriculum

Six of these new teachers identified their personal and professional needs to build their knowledge of the curriculum as a barrier to their effectiveness in the classroom. There was a sense that this might be a temporary challenge, and they could see a way forward, with the tools to learn what was needed.

> *To be honest my area that I feel like is still lacking is my math and just planning for that and finding what the kid's individually need. (Nic)*

Work-life Balance and Time Management

Work life balance emerged as a tension for four of the participants in this study. Their desire to be the best teacher they could be and the strain it placed on their personal lives is evident in these comments from Mary and Sue.

> *I was staying back until 6:00 at night to just get everything done and everything had to perfect. (Mary)*
> *I walked away feeling so overwhelmed. I had a massive to do list and it's like, I've got to get this done. (Sue)*

The substantial workload was particularly hard to manage when it was combined with a high level of employment precarity.

> *I was putting in a lot of hours and that was one of the harder parts and the only thing I really didn't like was that I was only going term-by-term contracts. (Mark)*

Other new graduates who identified their challenges with time management and its impact on the effectiveness in the classroom but were also able to be philosophical, highlighting the resilience of this group of new teachers.

> *Time efficiency wise everything takes me so much longer than everyone else, but I figure that's just part and parcel of learning. (Pat)*

Student Behaviour

Very few graduate teachers in this study mentioned student behavior as a barrier to their sense of effectiveness in the classroom. This is a surprising result given that the majority were working in socially disadvantaged communities where behavioural issues can often be a focus. Only two participants mentioned behavioral issues. Pat's comment below shows how these graduates were solution oriented in relation to seeking ways of overcoming barrier to their sense of self efficacy.

> *I didn't have a system. Every recess I'd have 3 or 4 issues and you'd want to do a restorative practice approach but then that was coming out of teaching time. (Pat)*

Other Barriers

Several other barriers to efficacy were identified by individual participants. One of these related to the systems and structures in their new school and how poor school organization made their teaching more challenging. Emily identified the lack of school behavior policy as a major challenge but went on to remark on how it has been character building, making her an even stronger teacher, again demonstrating the resilience of this cohort of graduate teachers.

> *No systematic approach to behaviour. This has been the biggest shock of my lifetime. But if I can do it at this school, you can easily put me in any other school, and I know that I'd be able to handle it. (Emily)*

Kate commented on the way her own high expectations sometimes worked against her sense of effectiveness as a new teacher. Her comment highlights one of the characteristics of this group of high performers, selected as highly capable undergraduates to join the NETDS program, and still setting their own bar very high.

> *You always have your moments where you're like, what am I doing? There's so much that you get wrong, and you want to be perfect at everything. (Kate)*

In summary, there are two key findings in this study. As undergraduates, the NETDS cohort exhibited slightly lower scores overall on the TSES self-efficacy measure than the wider cohort of PSTs, with a significantly lower score in terms of self-efficacy on the *Efficacy for Instructional Strategies* scale. In contrast, as graduates, the NETDS group exhibited a strong

sense of self-efficacy. They had experienced two years in the NETDS program, with additional support, collaboration, and low SES school placements. These experiences had helped build their confidence, organizational skills and capacity to differentiate learning providing mastery experiences which built their self-efficacy. In addition, many reported excellent mentoring as new teachers which further fostered their self-efficacy.

Discussion

This paper explored the self-efficacy of a group of high performing teachers who participated in the NETDS program at Deakin University. Data, collected at two points in their teacher development, shows that as PSTs they had lower self-efficacy than their non NETDS peers as measured by the TSES (Tschannen-Moran & Woolfolk Hoy, 2001), particularly in relation to their judgement of their abilities in classroom instruction. They then participated in the NETDS program, developing their teaching skills with students in more vulnerable communities. As new graduates, mostly working in low SES schools, this cohort presented with strong self-efficacy. Despite their tendency to perfectionism and to set the bar high for themselves (and their students) they reported that they felt effective in their new roles. The source of this self-efficacy was gained mostly via a combination mastery of many aspects of teaching alongside solid mentoring, coaching and positive feedback, the latter consistent with the findings of Martin and Mulvihill (2019). Several participants commented on the high level of shared planning in their schools and the way this had scaffolded their first year of teaching.

Their own self-belief and confidence appeared to have developed or been enhanced by the preparation that they undertook as part of the NETDS program, within their Teacher Education course, particularly in relation to placement experiences. Bandura's (1997) construct of self-efficacy is well supported by the data collected in this study, with mastery experiences emerging as a strong source of self-efficacy.

Self-efficacy Prior to Commencing the NETDS Program

The finding from Phase 1 of this study showed that the group of NETDS PSTs, who had been selected based on their outstanding grades, had marginally lower levels of "unrealistic optimism" (Weinstein, 1989) than their peers. The NETDS group had significantly lower levels of self-efficacy in classroom instruction, an aspect of teaching related to their knowledge and confidence in pedagogy and assessment. The lower levels of self-efficacy on the Instruction Scale reported by this group appear to be a surprising outcome, given that the NETDS group were all high performing PSTs and were taking part in a program which described them as exceptional. This finding, however, may be accounted for by examining the characteristics of these high performing PSTs. High achievers are prone to perfectionism and anxiety about performing well. Anecdotally, we know they set their own bar high and engaged in self critique. Other high performing cohorts of teachers, such as in the Teach For Australia program, have also been found to exhibit more self-doubt and anxieties about performing in the classroom at a level they will personally find acceptable (Evangelinou-Yiannakis, 2019; Windsor, 2014).

The NETDS Program

This group of PST teachers took part in the NETDS program over the final two years of their four-year undergraduate degree. They learned about the impact of poverty and trauma on young people and on student learning, reflected on the value of relationship building and practiced what they learned on placements in some very demanding and challenging schools. In seminars at Deakin University, they reflected with each other, vicariously learning from their peers and taking this learning into their next placement. Comments from the interviews with the NETDS group as new graduates tells us that the experiences on this program in the final two years of their undergraduate degree were highly impactful and helped to build their sense of efficacy. Take the comment from Mary, for example

> *I think the school I had placement on was the third most disadvantaged school in Australia and it was very tough and then finishing that placement I felt like I could almost go into just any classroom and just deal with the pressures and be resilient through that area.*

Teacher Efficacy in NETDS Graduates

The data sources presented in this paper are drawn from two separate studies involving the same cohort of participants. We have some powerful interview data with a focus on the efficacy of the NETDS graduates in their new school settings, 87.5% of whom were in low SES school communities. Midway through their first year of teaching, most of the 24 NETDS interviewees were feeling effective as new teachers. Using Bandura's model, the two sources of self-efficacy most frequently mentioned were *mastery* (placements in disadvantaged schools and their own confidence) and *verbal persuasion* (mentoring in their new school). These new graduates tell a positive story of helpful mentoring and useful feedback that has assisted them to adjust to their own role and feel like an effective teacher. This finding supports the beliefs of teacher educators as expressed in Martin and Mulvihill (2019), linking strong mentoring with building graduate self-efficacy. In addition, their placement experiences, own self-belief, and opportunities to observe progress in their students have provided them with mastery experiences that fuel their sense of self efficacy.

The enablers identified by some of the NETDS graduates deserve further analysis. Several participants commented on the way their schools supported new graduates with whole-school planning and fail-safe frameworks which suggested an extremely high level of scaffolding for new graduates. There is no doubt that these supports were appreciated and supported the graduates to feel confident and effective, but they do raise the question of how these exceptional new teachers were being encouraged to develop their own directions and autonomy in decision making. Further follow-up with these graduates with a focus on autonomy could be quite revealing. How do the supports put in place for these new teachers impact on their longer-term capacity for leadership and innovation? Similarly, Emily's comments about learning to be kinder to herself, given the slow progress of her students, also raises the question of whether she has started to acquire the zeitgeist in her school setting of lowered expectations.

Although these teachers might be recalibrating (Clark et al., 2015; Hoy & Spero, 2005) as they commence their teaching journey, overall, they appeared to be doing it with some highly formative *mastery* experiences as both PST teachers and new graduates, alongside supportive mentors who provide helpful feedback as *verbal persuasion.* Previous studies with new teachers, including two large studies, SETE (Mayer et al., 2017) and

LTEWS (Mayer et al., 2013), also support this finding that new teachers can feel well prepared for their demanding roles.

The NETDS graduates mentioned fewer barriers to their developing sense of efficacy than enablers. Their tendency to play down barriers may reflect their loyalty to their new school settings and their enthusiasm when talking with us, their previous NETDS program coordinators. Some key barriers did emerge. The focus on data gathering and datafication, the darling of many governments and policy makers, is clearly a pressure for these new graduates. Most of the graduate interviews were undertaken on site, often in the data room or in plain sight of the data wall where the progress of each student and each class was openly displayed. Although it is critical that children do not slip through the cracks with their learning, the impact of this *datafication* of education on new teachers cannot be overlooked, especially if we wish to retain high quality teachers in schools (Holloway, 2020).

Only two teachers out of the 24 interviewed here, mentioned student behaviour when talking about experiences as a graduate teacher and what had challenged their sense of efficacy. Again, this might reflect their desire to focus on positive aspects of their graduate experience. Although no specific question was asked of the teachers, it is surprising that more new graduates didn't mention this issue, especially given that many of them were teaching in some challenging school contexts with a significant level of disadvantage, and that this is an area where graduates often feel underprepared (Mayer et al., 2017; Mayer et al., 2013).

Limitations and Future Directions

With hindsight, we realize that readministering the TSES scale with the new graduates would have been highly informative, but we do not have that data. The contrast in self efficacy between the NETDS PSTS and graduates remains striking despite the fact it is drawn from two separate sources.

Given the focus on relationship building in the NETDS program it was disappointing to see so few new graduates spontaneously mention it in terms of their sense of efficacy as a new graduate. It deserved a greater focus in the interviews. It is hard to tell if those who did not mention relationships just saw it as a given pillar in their work as teachers or if their school setting had shifted their focus towards planning and data management.

There were also few mentions made about the challenges associated with behaviour management. It is possible that the NETDS program, and the kind of placements that these graduates had experienced in their Teacher Education degree had prepared this group better than other teacher education graduates for supporting positive behaviour in their new school settings. Further research with this focus would provide valuable insight into this question.

Reflection on these limitations will guide future research with the NETDS cohort and help to develop more sensitive tools for exploring this concept in the ongoing program. The findings from this study suggest that the NETDS program has impacted teacher education and the self-efficacy of teachers employed as graduates in low SES schools.

Klassen and Tse (2014) contend that their analysis of the relationship between teacher performance and self-efficacy suggest that "teachers are made, not born" (p 73). As PSTs, the NETDS cohort began their teaching journey with lower self-efficacy than their peers, possibly due to high expectations of self and a greater sense of realism about the challenges of teaching. In contrast, as graduates, these NETDS program participants presented as confident and resilient teachers with a strong sense of teacher efficacy. It seems that their experiences in low SES schools and in their studies had helped *make* them into effective teachers who were ready for their new profession.

In Australia, there is considerable rhetoric advanced by both government and the media (Leigh & Ryan, 2008; Visentin, 2021) about the declining quality of teachers and their preparation. This rhetoric is inconsistent with the findings of this study. These new teachers presented as reflective, confident and capable with a developing sense of *mastery* of their new profession. Their challenging graduate school destinations further enabled that sense of efficacy through mentoring, well planned and structured curriculum frameworks, coaching (*vicarious experiences*) and positive feedback (*verbal persuasion*). A strong sense of self-efficacy has been linked to better student outcomes and is thought to be of value for teachers working in more challenging low SES schools. As such, this group of graduates appear to be well positioned to truly make a difference to student outcomes.

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Acknowledgement

Appendix A
Phase 2 NETDS Graduate Project Interview Questions

1. We asked you to bring an artefact that represents your teaching journey until this point. Please explain what you have brought and why?
2. How effective do you feel as a new teacher?
3. Are there some areas where you feel stronger than others?
4. Can you describe a critical event that has occurred in your experience as a graduate teacher?
5. Can you tell us something about your school community and your classroom context?
6. How have your studies in education prepared you for your role as a teacher?
7. How has the NETDS Program prepared you for teaching in your current school setting?
8. What modifications can you suggest to the NETDS program based on your experiences as a new graduate teacher?
9. What do you see as being your biggest challenge for the rest of the year?