Impact of support for preservice teachers placed in disadvantaged schools

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One of the greatest challenges facing Australian school education is the disparity in quality of education across schools. One aspect of addressing this issue has been greater regulation and requirements to improve the quality of initial teacher education. Course accreditation standards in teacher education programs require secondary preservice teachers to have studied undergraduate units relevant to their specialist teaching area. Many of these secondary preservice teachers will have a professional practice experience in a disadvantaged school. However, issues around managing student behaviour and overcoming students' poor literacy skills can leave these preservice teachers floundering and unwilling to seek employment in these schools after graduation. In an effort to increase the number of teacher graduates choosing to seek employment in disadvantaged schools, this research examined the impact of a one-on-one subject specialist mentor and targeted workshop program for 54 preservice secondary science, mathematics and English teachers from a single university attending 24 disadvantaged schools. Using a quantitative survey, their self-efficacy was compared with preservice teachers placed in more advantaged schools. Qualitative data comprised a written questionnaire, workshop resources, meeting notes, and email communications between mentors and preservice teachers. The findings demonstrated that some preservice teachers placed in disadvantaged schools may experience significant personal, classroom and school based issues. However, their self-efficacy did not differ significantly from those placed in more advantaged schools.

Introduction

The challenges facing Australian preservice teachers as they enter classrooms to teach are complex. They come into schools with their own emerging understanding of teaching and curriculum areas and into environments with unique features and challenges. In today's environment, Australian preservice teachers enact national or state based mandated discipline curricula and are assessed under a set of Australian Professional Standards for Teachers (Australian Institute for Teaching and School Leadership (AITSL), 2011). Additionally, preservice teachers enter an increasingly diverse educational environment where schools are demarcated along economic and regional boundaries.

For early career and preservice teachers in disadvantaged schools this can mean teaching in environments which may be characterised by declining academic standards, poverty and systemic inequalities. Research indicates that teachers in disadvantaged schools are at risk of experiencing low self-efficacy (Belfi, Gielen, De Fraine, Verschueren & Meredith, 2016) and that the experience of professional practice may have a negative impact on self-efficacy (Brown, Lee & Collins, 2015). This research project aimed to identify the factors influencing preservice teachers' self-efficacy in disadvantaged schools and the ways they can be supported on professional practice. In doing so, the project investigated the place

of mentoring programs for preservice teachers on professional practice in disadvantaged schools. The project was guided by the key research question 'How can preservice teachers undertaking professional practice in disadvantaged schools be supported to build self-efficacy?'

An overview of the literature

The theoretical framework guiding this research is informed by three areas: the nature of educational disadvantage; teacher self-efficacy and resilience; and mentoring support for early career and preservice teachers.

Teaching in disadvantaged schools

Whilst Australia is a nation which aspires to provide educational opportunities for all its young people, secondary schools are currently experiencing declining academic standards in the areas of reading and mathematics (Thomson, De Bortoli & Buckley, 2013). Recent statistics indicate that the number of low performing students is growing. Students in schools located in disadvantaged communities are more likely to be underperforming than students in more advantaged schools (Lamb, Jackson, Walstab & Huo, 2015). For example, by the end of Year 10, young people in disadvantaged schools are, on average, 2.5 academic years behind their peers in more advantaged schools (Lamb, et al, 2015; Thomson, et al, 2013). Students from low socioeconomic status (SES) schools are also less likely to meet minimum national benchmarks in literacy and numeracy (Thomson, et al., 2013).

Educational disadvantage in Australia is characterised by concentrations of socioeconomic disadvantage, school remoteness, English language proficiency, Indigeneity and disability (Gonski, 2011). In this paper, the word 'disadvantaged' "is used not to describe an inherent characteristic of the individual student or school, but rather as recognition of their surrounding and historical circumstances" (Teach for Australia, 2017, p.7). The term, 'disadvantage' relates to socio-educational circumstance as defined by the Australian Curriculum, Assessment and Reporting Authority (ACARA, 2011) using the *Index of Community Socio-Educational Advantage* (ICSEA). ICSEA is a relative measure, with a mean of 1000 that provides an indication of the background of children attending a particular school. It was developed as a way of enabling comparisons of students' performance in literacy and numeracy with students in schools of a similar socioeconomic, geographic location and occupational background (ACARA, 2011).

Recent public conversations about educational disadvantage and the need to improve the performance of Australian students have focused on the notion of 'quality teaching' (Scholes, Lampert, Burnett, Comber, Hoff & Ferguson, 2017). The notions of 'quality' and 'effective teaching' are central in initial teacher education (ITE) courses offered in Australian institutions which prepare students for teaching and focus on the *Australian Professional Standards for Teachers* (AITSL, 2011). Whilst 'quality teaching' is important in addressing educational disadvantage, there is little evidence to indicate that teaching quality alone can eliminate the impact of disadvantage (Scholes et al., 2017). Burnett and

Lampert (2016) drew attention to the need for a greater emphasis in ITE courses on the impact of educational disadvantage and the socioeconomic and sociocultural factors influencing the lives of young people. This is important, not only so that teachers can focus upon diversity, but also to reduce the likelihood of a deficit view of students from disadvantaged backgrounds (Grudnoff, Haigh, Hill, Cochran-Smith, Ell & Ludlow, 2017). Grudnoff et al. (2017) make the point that preservice teachers need both a broad understanding of the systemic inequities and the broader socioeconomic and cultural environments that shape disadvantage and learning strategies that will support students. Research into effective teaching practices in disadvantaged schools accentuates the importance of teachers having a long term understanding of learning to underpin successful strategies; high expectations of student achievement; explicit and clear instruction, critical thinking and problem solving skills; and connections to students' life experiences (Cochran-Smith, Ell, Grudnoff, Haigh & Hill, 2016). For teachers in disadvantaged schools, and particularly for early career teachers, a supportive environment, strong school leadership and appropriate professional learning are important (Cochran-Smith et al., 2016).

Research on the experiences and retention of early career teachers within their first five years is at best patchy and indicates a complex situation that is somewhat at odds with public perceptions of how many new teachers are leaving the profession and the reasons for this (Weldon, 2018). Figures about teacher retention are unclear and in Western countries between 25% and 40% of beginning teachers are likely to leave in the first five years (Le Cornu, 2013). This is not a new problem. In Australia, the Department of Education, Science and Training reported in 2003 that 25% of beginning teachers would resign in the first three years of teaching (Department of Education, Science and Training, 2003). The reasons for early career teacher attrition are also unclear. Australian research indicates that new teachers may leave the profession due to behaviour management difficulties, exhaustion and unsupportive school environments (Weldon, 2018). Research also indicates that there is a mismatch between perceptions that preservice teachers bring into their ITE courses and into their early periods of teaching and the 'reality shock' of day to day life in classrooms and schools (Pendergast, Garvis & Keogh, 2011).

Teacher self-efficacy and resilience

Being resilient requires that teachers have a level of self-efficacy that gives them the confidence to carry out the specific activities of teaching and to see concrete outcomes (Brown, Lee & Collins, 2015; Prendergast et al., 2011; Tschannen-Moran & Woolfolk Hoy, 2001). Bandura (1997) outlined four foundations for teacher self-efficacy including mastery experiences, emotional states, learning from observing the performance and experience of others, and social persuasion or feedback from others. Teachers with high levels of self-efficacy are less likely to suffer burnout; have a higher level of job satisfaction; are more able to cope with students' emotional and behavioural difficulties; are less critical of students who make mistakes and generally demonstrate effective classroom management strategies (Brown et al., 2015). Brown et al. (2015) found that preservice teachers going into the classroom for the first time are often more confident than those entering later professional practice placements and that their prior experiences

as school students and their first professional practice may influence subsequent feelings of confidence. Teachers in socioeconomically disadvantaged schools are more likely to experience low self-efficacy which may be an experience shared across an entire school community (Belfi, Gielen, De Fraine, Verschueren & Meredith, 2016).

Research conducted over the past twenty years in Australia and internationally shows that the challenges of classroom management are a major contributor to early career teacher attrition and exhaustion (Egeberg, McConney & Price, 2016; Prendergast et al., 2011). Woodcock and Emms (2015) found that preservice and early career teachers with high levels of self-efficacy are likely to use more preventative strategies such as seating arrangements, established routines, and the modelling and acknowledgment of positive behaviours and were inclined to be less reactive to challenging classroom situations. They are also more likely to use corrective strategies only after preventative strategies have been employed, and to effectively manage low levels of disruptive behaviours such as non-compliance and talking out of turn.

Burnett and Lampert (2016) made the point that an emphasis on behaviour management, which can tend to exclude conversations and strategies about engagement, instruction, prevention and diversity, particularly in ITE courses, may reinforce a deficit view of students in disadvantaged schools. Preservice and early career teachers need an understanding and capacity to use specific preventative strategies such as utilising cues and routines for starting lessons and activities, modelling positive and desired behaviours, providing explicit, clear and consistent expectations and longer-term strategies such as building rapport with students (Egeberg et al., 2016; McDonald, 2013). This is not to suggest that corrective strategies are not required; however, they need to be seen as part of an overall approach in managing and de-escalating behavioural issues in the classroom (Bennet & Smilanich, 1994).

In the past twenty years, Australia has experienced growing levels of immigration and cultural diversity (Vass, 2017). Culturally responsive approaches to teaching go some way to diffusing potential deficit views with high expectations (Vass, 2017) which Gay (2010) explained as "…the cultural knowledge, prior experiences, frames of reference, and performance styles of ethnically diverse students to make learning encounters more relevant to and effective for them" (p. 31). Culturally responsive teachers are characterised by having a commitment to every students' success; being engaged with cultural perspectives, contributions and forms of knowledge; using a range of instructional strategies and resources; and being emancipatory in understanding and exposing oppressive educational practices and ideologies (Vass, 2017). An understanding of cultural competence can go some way to building preservice teachers' self-efficacy and confidence as teachers of Indigenous students (Byrne & Gower, 2013).

Teacher resilience is a complex notion; however, Mansfield, Beltman, Broadley & Weatherby-Fell (2016) described resilient teachers as those who "…thrive in difficult circumstances, are skilled in behaviour management, able to empathise with difficult students, able to restrain negative emotions and focus on the positive, experience a sense of pride and fulfilment and increased commitment to their school and profession" (p.78).

Day and Hong (2016) made the point that resilience is important for teachers in disadvantaged schools and that a teacher's capacity for resilience is not innate, but is dependent on aspects of the professional and school environment. Mansfield et al. (2016) highlighted that whilst ITE courses can play a key role in the development of resilience, there is limited research into how this is being successfully achieved. This has implications for ITE courses where preservice teachers need to be made aware of the multiple demands of the profession and an understanding of strategies for developing resilience within the profession, particularly if they are to thrive in their early years (Mansfield, Beltman & Price, 2014). Such an approach envisages resilience in terms of capacity building entailing the use and development of teachers' own resources, and capacity to draw upon the support, knowledge and experience of others (Mansfield et al., 2014).

Mentoring in professional practice

ITE courses for secondary school teaching (years 7-12) in Australia are characterised by periods of university study where students learn about teaching pedagogy and their curriculum areas and periods of professional practice in schools under the guidance of a school based mentor. Mentoring is an accepted part of professional practice and typically takes the form of experienced teachers in schools providing guidance and sharing expert knowledge with a novice (Mena, Hennissen & Loughran, 2017). This is important as ITE courses cannot anticipate all the specific experiences preservice teachers may encounter in the unique environments of individual schools and classrooms (Mena et al., 2017). Additionally, mentoring can provide an 'authentic' experience which can complement the learning taking place in universities and can help to bridge the gap between knowledge from ITE courses and the realities of the school and classroom (Mena et al., 2017). It can also play a key role in socialising preservice teachers into the demands of the job (Izandinia, 2016). The research of Mena et al. (2017) identified that most mentoring taking place in schools is one directional and based on a transmission approach to learning and knowledge building. Despite the significance of mentoring as a practice in ITE courses and within professional practice, it is often poorly defined, there is significant variation in the quality of mentoring practices within schools, and it is often linked to formal summative assessment (Mansfield et al., 2017; Vass, 2017). The complexities of classroom teaching and the challenges faced by early career teachers do suggest a need for innovative and closer ties between preservice teachers whilst in schools, and their university educators (Cranston-Gingras, Alvarez McHatton, Allsopp, Colucci, Hoppey & Hahn, 2018).

Within an educational setting, the research of Mena et al. (2017) and Kemmis, Heikkinen, Fransson, Aspfors & Edwards-Groves, (2014) identified three archetypes of mentoring, including mentoring as support, mentoring as supervision and mentoring as a form of collaborative self-development. In this research, mentoring is described as supportive and collaborative self-development not involved in assessment or accreditation. Mentoring as support is characterised as guidance provided by a mentor who is not a supervisor and often takes the form of professional dialogue removed from formal or hierarchical relationships (Kemmis et al., 2014: Mena et al, 2017).

This research aims to examine the effect of a support and mentoring program for preservice secondary school science, mathematics and English teachers who were placed in a disadvantaged school for their first professional practice. The overarching research question that informed this study was:

> How can preservice teachers undertaking professional practice in disadvantaged schools be supported to build self-efficacy? The specific research questions are:
>
> 1. What is the impact of professional practice on preservice teacher self-efficacy?
> 2. How can preservice teachers placed in disadvantaged schools be supported during their professional practice?
> 3. What issues arise for preservice teachers placed in disadvantaged schools?

Method

This research uses a case study method (Merriam, 2009) to examine the implementation and evaluation of a support and mentoring program for preservice secondary science, mathematics and English teachers. The case comprises preservice teachers who were studying at a single university. Multiple data sources included a pre- and post- survey on self-efficacy and qualitative data comprising a written open-ended questionnaire, meeting notes, and email communications. The multiple data sources enabled triangulation of the findings to ensure trustworthiness. Prior to commencing the study, university ethics approval was obtained. Pseudonyms are used throughout the paper and the university and schools are not identified.

Sample and context

At the start of 2017, the authors were awarded a 12-month internal grant funded by University Alumni, with the aim of improving the learning outcomes of current and future students. The preservice teachers were enrolled in a postgraduate ITE course (one-year Graduate Diploma in Education or two-year Master of Teaching) at a single university in 2017. At the start of the academic year, during orientation, preservice teachers enrolled in a major teaching area of science, mathematics or English were invited to participate. A major teaching area is an area that a graduate is qualified to teach from Years 7 to 12. Although the ITE course offers majors in other subject areas, given the poor international and national literacy, numeracy and science results in disadvantaged schools, science, mathematics and English were targeted. Further, these majors were chosen as there is a shortage of qualified English, mathematics and science teachers in Australian schools. Funding restrictions also limited our sample size. Preservice teachers who agreed to participate were provided an information sheet, consent form and a pre-questionnaire with background demographic questions and a teacher self-efficacy survey.

The course is structured so that the preservice teachers complete 10 weeks full-time at university studying subject specific curriculum units which focus on the Australian curriculum and pedagogy, an Aboriginal education unit to develop cultural awareness, and a general teaching unit that introduces them to theories of learning, pedagogical

approaches and assessment principles. They also attend weekly seminars on classroom management, lesson planning, and questioning and discussion techniques to prepare them for professional practice. Preservice teachers are then assigned to a school for a full-time six-week period. While this university-based preparation ensures that preservice teachers are academically prepared for professional practice, our previous experience is that some preservice teachers placed in disadvantaged schools are ill-equipped to overcome issues associated with their students' challenging behaviours, low literacy skills and family backgrounds.

The 24 disadvantaged schools in this study had an ICSEA ranging from 865 to 985 (*My School,* 2018). Of the 24 schools, 20 were located in outer metropolitan Perth and the remaining four were regional. All but one school was a government funded public school. The comparison schools, termed 'advantaged' had an ICSEA ranging from 1000 to 1239.

Data sources

Self-efficacy survey
All preservice teachers, regardless of school, were invited to complete a pre- and post-survey of teacher self-efficacy at the start of the academic year and again after professional practice. The pre-survey took place in Week One of the semester between 28 February and 6 March 2017. The post-survey took place after professional practice between 17 and 21 July 2017. The authors used the *Ohio State Teacher Efficacy Scale* which was refined by Tschannen-Moran and Woolfolk Hoy (2001) from an earlier scale developed by Bandura (1997). The self-efficacy scale comprised 24 items with a nine point Likert scale. Tschannen-Moran and Woolfolk Hoy (2001) found that the scale was valid and reliable and, using factor analysis, three sub-scales were identified: efficacy in student engagement; efficacy in instructional strategies; and efficacy in classroom management. Sample questions include:

> How much can you do to get through to the most difficult students?
> How well can you establish routines to keep activities running smoothly?
> How much can you do to foster student creativity?

For each survey, the items and scores were coded and entered into *SPSS*. The mean and standard deviation for the self-efficacy scale and each of the three sub-scales was calculated. An independent samples t-test was used to compare changes in self-efficacy of preservice teachers placed in disadvantaged schools (ICSEA<1000) with those placed in more advantaged schools (ICSEA>1000). Reliability was determined using Cronbach's alpha for the pre- and post-self-efficacy scale and sub-scales.

The self-efficacy survey has previously been used in Australia with preservice teachers to compare changes in different cohorts' self-efficacy during an ITE course (Pendergast, Garvis & Keogh, 2011). The mean and standard deviation for self-efficacy of the preservice teachers in their study decreased from 7.40 ± 0.77 to 6.89 ± 1.29. The authors attributed the decrease to a "reality shock" (p. 53), as a result of professional practice.

Demographic data

A pre-questionnaire with questions about the preservice teachers' major teaching area, gender, age, tertiary qualifications, and secondary school background was administered. Note that all preservice teachers were postgraduate students and held an undergraduate degree. This demographic data was coded and entered into *SPSS* to provide frequency counts.

Qualitative data

The preservice teachers who attended a disadvantaged school during their professional practice and had been invited to participate in the mentoring and support program responded in a written post-questionnaire to open-ended questions about their level of participation and perceived effectiveness of each of the workshops and mentors. Other qualitative data included workshop materials, meeting notes, and mentor/preservice teacher emails. This data was analysed using an inductive grounded theory approach to identify emergent themes. In brief, the qualitative data was read by two researchers with each identifying the themes that arose most frequently.

Mentoring and support program

Fifty-four (54) preservice teachers were placed in one of 24 disadvantaged schools for their professional practice. These preservice teachers were invited by email and during class to participate in the mentoring and support program which comprised workshops and a subject specialist mentor.

Workshops

During the professional practice period, four half-day workshops were held at the university on Saturdays. The workshop topics, in order of presentation, were: behaviour management; understanding culture of disadvantage; resilience and interpersonal skills; and teaching in low literacy environments. The workshop topics were selected based on the authors' experiences as secondary school teachers and teacher educators. All workshops commenced with the preservice teachers networking and sharing experiences with each other.

The first workshop on behaviour management was conducted by staff from the Western Australian Department of Education. A positive behaviour approach to behaviour management is promoted in all Western Australian government schools and emphasises low key responses (e.g., the 'look', name, pause, proximity), giving choices and effective consequences, and 'bump theory' (a gradual increase in consequences) (Bennett & Smilanich, 1994). At this point, the preservice teachers had spent one week in schools and some had experienced difficulties in managing the behaviour of their students. The second workshop on cultural awareness was conducted by an Indigenous educator (who had recently been a school principal) and a science teacher who had extensive experience teaching in disadvantaged schools in Western Australia. The third workshop on resilience and interpersonal skills was conducted by a senior psychologist with experience in resilience training in educational settings. He provided the preservice teachers with strategies to manage stressful situations. The final workshop was conducted by an English

teacher who had previously taught in remote Indigenous communities. He provided concrete strategies for teaching students who did not have English as their first language.

Mentors
Each preservice teacher was assigned a subject specialist (science, mathematics or English) mentor who had previously taught in disadvantaged schools. The mentor was independent of the school and the university and had no role in formal assessment of the preservice teacher. Initial meetings between the authors and the mentors were held to discuss their roles and the types of issues that might arise and how they would be dealt with. Due to the ethics approval process, mentors were not to visit the preservice teachers at their schools. Rather, they would maintain contact by phone and/or email. Prior to professional practice, an initial face-to-face meeting was held for mentors to meet the preservice teachers. This meeting took place in the week before professional practice and mentoring support was available for the duration of the professional practice.

Results

Demographic data

At the start of the academic year, the purpose of the mentoring and support program was explained to all secondary science, mathematics and English preservice teachers and they were invited to complete the pre-survey. At this stage, professional practice schools were not allocated. A total of 115 out of 164 preservice teachers provided data about their teaching major, age, gender, qualifications and educational background. The preservice teachers' background information is summarised in Table 1.

Science preservice teachers made up more than two-thirds of the cohort which is representative of the ITE cohort where science is the largest curriculum area. There were slightly more females than males. The preservice teachers were relatively young with three quarters aged 29 or under. Despite their age, almost a third already held a postgraduate qualification. Less than 40 percent of the cohort had attended a government secondary school. Yet, in Australia about 66% of school students attend a government secondary school (Australian Bureau of Statistics, 2018). In addition to the low proportion who had attended a government school, only 18 (16%) of the preservice teachers attended a school with an ICSEA<1000. This finding led us to postulate that the preservice teachers may not be familiar with the culture of disadvantaged schools. These findings are important in identifying that preservice teachers may come to professional practice with differing life experiences which may influence their self-efficacy in the classroom and school environment.

Preservice teacher self-efficacy (Research question 1)

Although 115 preservice teachers commenced the pre-survey, four did not complete the self-efficacy questions. Their data was excluded from further analysis, leaving 111 surveys. The number of preservice teachers in each school type who completed the self-efficacy pre- and post-survey is summarised in Table 2. Reasons for the reduction in post-surveys

were due to: preservice teacher withdrawal; deferring professional practice; change of major; unwillingness to participate; or not returning the survey within two weeks.

Table 1: Teaching major, gender, age, qualifications
and educational background (N=115)

Demographic	Criteria	No. preservice teachers	%
Teaching major	Science	79	69
	Maths	10	9
	English	26	22
Gender	Female	62	54
	Male	53	46
Age range	20-29	87	75
	30-39	16	14
	Greater than 40	13	11
Qualifications	Bachelor	79	69
	Honours	17	15
	Masters or PhD	19	16
Secondary school attended	Government	45	39
	Catholic	21	18
	Independent	28	24
	Overseas	20	18
	No response	1	1
ICSEA of secondary school	<1000	18	16
	>1000	76	66
	Not available	21	18

Table 2: School type and number of preservice
teachers completing the self-efficacy survey

School type	Pre-survey		Post-survey	
	n	%	n	%
Disadvantaged school	36	32	24	37
Advantaged school	75	68	40	63
Total	111		64	

The purpose of the pre- and post-survey was to measure whether there was any change in preservice teachers' self-efficacy after their professional practice. Further, the self-efficacy scale and sub-scales of preservice teachers who attended more advantaged schools were compared with those who attended disadvantaged schools and had access to mentoring and support. Our aim was that there would be no difference between the two groups. That is, the preservice teachers attending disadvantaged schools would have a similar level of self-efficacy to those attending more advantaged schools. The authors are aware that a third group who attended a disadvantaged school and received no support would provide evidence about the impact of the mentoring and support program. However, this was

considered unethical. Table 3 summarises the mean and standard deviation of the self-efficacy scale and sub-scales.

Table 3: Self-efficacy scale and sub-scales of preservice teachers placed
in disadvantaged schools compared with those in more advantaged schools

Self-efficacy area	Disadvantaged school				Advantaged school			
	Pre-survey		Post-survey		Pre-survey		Post-survey	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Overall self-efficacy	5.87	1.04	6.10	0.86	6.17	1.15	6.43	1.08
Student engagement	5.83	1.04	5.63	1.06	6.17	1.15	6.14	1.12
Instructional strategies	6.14	1.21	6.56	0.73	6.45	1.23	6.63	1.21
Classroom management	5.64	1.22	6.12	1.06	5.89	1.30	6.51	1.15

The Likert scale ranged from 1-9 where the higher the score is, the greater the perceived sense of self-efficacy. In both groups, the overall self-efficacy scale, instructional strategies and classroom management sub-scales increased over time with a slight decrease in the student engagement sub-scale. A comparison of the overall self-efficacy and sub-scales of student engagement, instructional strategies and classroom management of preservice teachers placed in disadvantaged schools and those in more advantaged schools was performed using an independent samples t-test. Neither Shapiro-Wilk statistic was significant, indicating that the assumption of normality was not violated. Levene's test was also non-significant, thus equal variances can be assumed. There was no statistical difference between groups in overall self-efficacy either before or after professional practice. Nor was there any significant difference for any of the three sub-scales.

The Cronbach's alpha scores for overall self-efficacy and self-efficacy sub-scales are reported in Table 4. The strong positive correlations between the items, in both the pre- and post-survey, indicated the items were internally consistent for the measurement of self-efficacy and the three sub-scales. These scores compare favourably with Tschannen-Moran and Woolfolk Hoy (2001) who found reliability for the 24 item scale was 0.94. Pendergast, Garvis and Keogh (2011) obtained scores of 0.94 and 0.97 for overall self-efficacy.

Mentoring and support program (Research question 2)

A total of 54 preservice teachers attending disadvantaged schools were invited to participate in the mentoring and support program. Their major teaching areas were science (n=34), mathematics (n=10) and English (n=10). These proportions reflect the overall enrolments in the course. A written questionnaire was completed by 27/54 preservice teachers who attended a disadvantaged school to ascertain their perceptions of the mentoring and workshops. They were also asked what was the most challenging part

Table 4: Cronbach's alpha for subscale self-efficacy
scores of both pre- and post-professional practice

Subscale	Cronbach's alpha	
	Pre-professional practice (n=111)	Post-professional practice (n=64)
Overall self-efficacy	0.961	0.952
Student engagement	0.885	0.863
Instructional strategies	0.911	0.876
Classroom management	0.927	0.912

of professional practice. The most frequently cited challenge was classroom management (17/27, 63%) followed by engaging difficult students (9/27, 33%). For example, three of the preservice teachers wrote:

> Disengagement and behaviour management was time consuming and tiring. (science major)
> Teaching students who had no desire to learn or had no aspirations in life to live up to. (science major)
> The students. They came from a background and context that I couldn't identify with and I had to re-learn how to teach and connect with them all over again. (English major)

Workshops
The number of preservice teachers who attended the workshops ranged from 18 to 28. The preservice teachers' names were not recorded and thus it is not possible to compare the self-efficacy results of preservice teachers who did or did not attend the workshops. Reasons for not attending included: paid work commitments; tiredness due to professional practice; and time needed to plan lessons. As one preservice teacher commented:

> I didn't attend as they took place during prac. I wish I could have attended, however I was far too tired from prac and had far too much planning to do to attend. (mathematics major)

Those preservice teachers who did attend found the workshops were an opportunity to connect with their peers. It was used by them to share anecdotes, network with each other and most importantly debrief. One preservice teacher who attended all four workshops explained:

> I found the second workshop to be really quite useful as we had the opportunity to share our experiences and difficulties and provide peer support. As I just moved to Perth and don't personally know any preservice secondary teachers teaching in low SES schools, knowing that I was not struggling alone was useful. (Science major)

The preservice teachers were also asked to rank the usefulness of each workshop they attended, from 1 (not at all useful) to 5 (extremely useful). Of the four workshops presented, the preservice teachers found the resilience and interpersonal skills workshop most useful, followed by advanced behaviour management skills, culture of disadvantage and low literacy.

Mentors
The four mentors maintained contact with the preservice teachers through email and telephone. The mathematics mentor sent regular emails to all mathematics preservice teachers while the others communicated one-on-one. Half of the preservice teachers had no two-way contact with their mentor. The main reason for having no contact was that the preservice teachers considered they had sufficient support at their schools. As one preservice teacher wrote:

> After seeing the school and students I found the classes to be manageable. I
> found most of the advice from my mentor to be helpful enough.

And:

> It was nice to know that I had the option of support. There were moments when
> I considered getting in contact with my personal mentor, but we actually had
> really good support at school from mentors and fellow student-teachers.

Those preservice teachers who did communicate with their mentors found the extra support to be beneficial. For example, one wrote, "One day I was really struggling. I messaged him for support which was good". Another wrote: "I felt like I had another person to talk to that was there for me if I needed". Data about mentoring support was limited to instances of contact and student comments. The anonymity of contact with preservice teachers does not enable comparison with self-efficacy and is a limitation of the study.

Issues affecting preservice teachers in disadvantaged schools (Research question 3)

In analysing the content of emails between the preservice teachers and mentors, and meeting notes, there were three key themes that emerged. The first theme related to personal matters, the second theme related to classroom issues and the third theme related to school-based factors. The personal issues that arose with some preservice teachers related to stress and exhaustion. The exhaustion due to the demands of professional practice seemed to be exacerbated when the preservice teachers were also managing paid work and/or family commitments. The preservice teachers had been informed in advance that professional practice would be a full-time commitment. Although the teaching load increased from about one period a day to 0.6 of a full-time load, unfamiliar content and lesson preparation were time consuming and created a stressful situation.

The classroom issues related not only to witnessing and needing to address challenging behaviour but also to pedagogical content knowledge (Cochran et al., 2016). Some of the preservice teachers, especially those in mathematics, struggled to simplify concepts so that

they were accessible to their students. Despite exposure to curriculum and pedagogy at university, some preservice teachers were not able to employ successfully a wide repertoire of subject specific strategies (e.g., investigations in science). Some preservice teachers defaulted to expository teacher centred strategies that were almost impossible to implement effectively in noisy classrooms.

Some preservice teachers were disheartened by their school environment. They were concerned at the low (or seemingly non-existent) aspirations of the students (Grudnoff et al., 2017). The preservice teachers shared anecdotes of youth homelessness, domestic and family violence, suicide, drug abuse, child protection and mental health disorders. It is acknowledged that these issues arise in all school environments. However, the incidence of mental health disorders including attention deficit disorder and suicidal ideation is higher in disadvantaged schools. One of the science preservice teachers who had herself attended a disadvantaged school withdrew in the second week of professional practice. In a debrief interview, she said she "couldn't handle it". When asked about her own school experience, she explained that she and her friends were in a special ATAR class from year 9 and she had been oblivious to the other students at her school.

Discussion

In this study, preservice teachers who were placed in a disadvantaged school for their first professional practice were provided with a mentor and targeted workshops. When compared to preservice teachers who attended more advantaged schools, there was no significant difference in their overall self-efficacy. This was despite some preservice teachers facing substantial challenges related to their school environment, classroom teaching and personal circumstances. Some preservice teachers didn't need mentors or workshops as they felt they had excellent in-school support, while others were in crisis. There were those who did have positive experiences in a disadvantaged school and felt a sense of satisfaction from their teaching experience. As one preservice teacher explained "Working in a challenging school yielded a lot of satisfaction from small classroom successes with difficult students". Another preservice teacher wrote "I liked the students and felt quite passionate that what I was doing was important".

Of the four workshops, preservice teachers identified the workshop on resilience and interpersonal skills to be the most useful followed by behaviour management. Two thirds of the 27 questionnaire respondents cited classroom management as the most challenging aspect of their professional practice which is consistent with research findings into the challenges faced by early career teachers (Egeberg et al., 2016; Pendergast et al., 2011). This study highlights the importance of preservice teachers having an understanding of strategies for engaging disadvantaged and potentially disruptive students. This finding indicates that there is a need to focus explicitly on teaching strategies that support students in disadvantaged schools (Burnett & Lampert, 2016; Cochran-Smith et al., 2016).

The study emphasises the importance of explicitly supporting preservice teachers to build their resilience through areas such as classroom management and instruction, particularly

as teachers in disadvantaged schools may be at greater risk of low self-efficacy than teachers in more advantaged schools (Belfi et. al, 2016). This is important as teachers with a high level of self-efficacy are also likely to experience less frustration in dealing with students (Woodcock & Emms, 2015). It is however necessary to balance expectations with reality and for teacher educators, this means preparing preservice teachers so that they have an understanding of the broader socioeconomic factors that may affect students in disadvantaged schools (Brown et al, 2015).

The results of this research also highlight the importance of drawing upon optimism and empathy as buffers against the challenges of the working environment. One notable omission from the Australian *Professional Standards for Teachers* (AITSL, 2011) is incorporation of personal and professional capabilities such as resilience. Inclusion of teacher capabilities that support resilience, and adaptive strategies such as time management and self care may go some way to highlighting the importance of these skills for students, universities and schools. In this research, preservice teachers had support from their school mentors which a number of students identified as a positive experience. The fact that mentors also formally assess preservice teachers on their teaching performance is a potential source of tension where they may be reluctant to express their personal concerns which may lead to crisis and withdrawal from their studies. The support offered by university supervisors whilst preservice teachers are on professional practice may also be unstructured and dependant on preservice teachers contacting them at times of crisis.

This study provided additional support for students whilst on professional practice, in the form of targeted workshops and also individual mentoring provided by professionals. Whilst some preservice teachers saw value in the workshops, the demands of professional practice, and, for some, maintaining part-time work and other commitments, made attending workshops difficult. The study does indicate the importance of support, particularly in forms such as mentoring, in flexible and responsive ways. The study also indicates the importance of learning in additional areas such as mental health disorders and challenging behaviours (e.g., autism spectrum disorder). Individual mentoring allowed preservice teachers to initiate contact with mentors and to maintain a level of control over the advice sought in an environment removed from assessment and accreditation (Kemmis et al., 2014). Feedback from students on the value of sharing experiences with each other during professional practice also demonstrates the importance of collaborative mentoring between peers as a way to build supportive networks.

There are several limitations that need to be considered regarding the findings. First, as a case study of science, mathematics and English teachers, the findings regarding self-efficacy are not generalisable to other teacher education courses or to preservice teachers of other levels of schooling or to other teaching areas. Second, the anonymity of the mentor and preservice teacher email communication and names of workshop attendees meant it was not possible to link those findings to self-efficacy. Third, there was a decrease in response rate in the post-self-efficacy survey. Fourth, due to limited funding, preservice teachers on professional practice in more advantaged schools were unable to access the mentors or workshops. Future research is recommended to determine to what

extent participation in these support mechanisms is related to self-efficacy and whether findings are consistent across different levels of schooling and subject areas. Finally, it would be desirable to follow up the progress and employment choices of the preservice teachers as they transition to early career teachers.

Conclusion

This study aimed to determine how preservice teachers could be better supported during their first professional practice with the hope that they would choose to teach in disadvantaged schools after graduation. This research demonstrates both the rewards and the challenges of professional practice in disadvantaged schools. It also reveals some of the strategies that can support students such as an understanding of the impact of disadvantage, effective engagement, and preventative and corrective classroom management strategies. Importantly, it indicates the need for additional support to be in place for those who are struggling and for those in schools which are unable to provide a suitable level of support. Preservice teachers who feel a sense of satisfaction and fulfilment, which contributes to self-efficacy and resilience, are more likely to continue their journey as a teacher, and to be predisposed to consider teaching in a disadvantaged school. For ITE, this means exploring flexible and collaborative approaches to mentoring that can help to bridge the gap between school and university and to offer mentoring support that complements the assessment-based mentoring that dominates professional practice.

Acknowledgments

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