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## Gender and Stress Levels Among Pre-Service Teachers

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*Abstract: This study used gender-sensitive research to investigate stress levels and stressors among pre-service teachers. The differences and similarities in stress levels between male and female pre-service teachers were studied. There were five significant findings: 1) both male and female pre-service teachers had high-stress levels; 2) male pre-service teachers had higher stress levels than females; 3) male pre-service teachers' stress has a strong relationship with their ages, while it was not for female pre-service teachers; 4) male pre-service teachers preferred to undertake their placement and commence their teaching career in middle or higher year level sectors, while female students preferred to teach in middle or lower year level sectors; and 5) while male and female students had similar knowledge about available support, their expectations of support were different. These findings can inform future gender-appropriate support mechanisms for pre-service teachers, leading to better retention in their studies and future career.*

### Introduction

The teacher shortage has become a significant social concern. Precel (2023) reported in *The Age* news that schools are considering combining classes or doubling class sizes, bringing graduate teachers and placing principals in classrooms to accommodate this shortage. One of the reasons is that many teachers leave the profession early, related to personal contexts and the stresses of burnout. In addition, the shortage of male teachers has been a topic of increasing interest in education in Australia for a long time. For example, according to Harris (2023)'s report in *The Sydney Morning Herald*, there has been no increase in the percentage of male teachers in public school classrooms. In fact, the news in the *ABC North Coast* (Farrow-Smith, 2019) shows the actual percentage of male teachers in primary classrooms in 2019 was only 15%, compared to 30% in the 1980s. Such statistics raise concerns as to the decrease male teacher numbers, exposing questions relating to gender and stress levels among teachers. A body of opinion holds that the quality of a good teacher should not focus on gender, and use of gender should not be valued simply as role models (Boring, 2017; Gosse, 2011; Mengel et al., 2019), because our society is going through a period of great sensitivity towards gender diversity

(Healey, 2022).

Gender includes sociocultural attributes and related expositions commonly associated with being a man or a woman (Ritz et al., 2014). Recently, much gender sensitivity research paid attention to the similarities and differences between men's and women's experiences and viewpoints, and gives equal value to each (Jahn et al., 2017). This paper, therefore, used gender sensitivity research to identify the differences and similarities of the stress levels among female and male pre-service teachers, with a long-term goal of developing appropriate strategies to maintain their wellbeing and retain pre-service teachers in the workforce.

## **Literature Review**

### **Stress Among Pre-Service Teachers**

Teaching can be stressful, and teacher resilience has been a primary concern (Peixoto et al., 2020; Pozo-Rico et al., 2023). Among pre-service teachers, the lack of teaching experience and the tension of being supervised and evaluated during their teaching practicum by their mentors and university lecturers are causing a significant amount of stress among them (Geng et al., 2019; Han & Takkaç-Tulgar, 2019).

Extensive investigations now provide teachers with strategies for facing challenges and coping with stress. However, some research has focused on the experiences of teachers and early career teachers (e.g., Desrumaux et al., 2023; Rieg et al., 2007; Van Wingerden & Poell, 2019), and much research has been focussing on the coping experiences of pre-service teachers (e.g., García-Martínez et al., 2021a; Han & Takkaç-Tulgar, 2019; Mansfield et al., 2020).

There have also been numerous studies that investigated the negative effect that workload has on university students' overall health and wellbeing (Fokkens-Bruinsma et al., 2023; Macaskill, 2013; Prowse et al., 2021). A consistent finding has been that when students, including pre-service teachers, are overwhelmed and stressed with their workload, including the completion of assessments, many elect to withdraw from the unit or even the whole course.

In teacher education courses, all pre-services teachers are required to undertake teaching practicums, with associated practice-based assessments, in addition to their theory study load (Mansfield et al., 2020). In their theoretical education studies, pre-service teachers are required to undertake individual assignments as well as group work tasks. While pre-service teachers are responsible for completing individual study tasks, they must also cope with the inherent tensions of group work. Group work is associated with hindrance-related stress (Gómez Fernández, 2019) and can influence pre-service teachers' studying performance and satisfaction level. In addition, the challenge of balancing practicum experience, including 'on the job' assessment tasks, with university based theoretical study demands is a long-standing issue for pre-service teachers nationwide (García-Martínez et al., 2021a; Geng et al., 2019). These additional demands can create varying levels of stress among students, and unmanaged, has the potential to affect mental health and engagement with learning. During school-based professional experience the demand on pre-service teachers is high as they observe mentor teachers' classrooms; develop understanding and familiarity with students in different educational settings; build professional relationships with teachers; and, complete placement assessments. Moreover, the style of placement assessment, designing and developing lesson plans and translating theoretical strategies and pedagogy into classroom lessons, must be undertaken within the tight timeline of teaching practice, all of which can be very stressful (García-Martínez et al., 2021b; Smit et al., 2021). Research on the mental health and well-being of pre-service teachers has indicated that

this stress can result in students withdrawing from study and relinquishing teaching as a future career (Geng & Midford, 2015).

### **Gender and Stress**

A number of studies reviewed the gender differences in stress, suggest that gender plays an important role in stress levels (Parveen & Bano, 2019; Peyer et al., 2022; Redondo-Flórez et al., 2020). For example, much research found females tended to report higher levels than males, on the basis of their exposure and response to stressors less likely encountered by men, and women are more likely to report physical and emotional symptoms associated with their stress (Prowse et al., 2021).

Research has also been undertaken on gender related occupational stress, job satisfaction and state of health. For example, according to Cifre et al. (2013) and Ryu et al. (2018), implications of mistakes, long working hours, and conflicting job tasks and demands were reported as stressors for both genders. High job demands and lack of support increased risk of psychiatric disorder for both genders. Although much research has reported no difference in the level of workplace stress between women and men (Beno et al., 2021; Tsai, 2016), other research has noted differences in the stressors between the sexes. For example, Prowse et al. (2021) found that female university students, in particular, are exposed to the following stressors: multiple roles; lack of career progress; and discrimination and stereotyping. On the other hand, research also acknowledged that men also experience gender specific stressors; and men are more concerned about their level of control at work and their achievement-oriented behaviour (Frantz & Holmgren, 2019).

### **Gendered Response to Stress**

It was found that women and men interact differently with others (Walsh & Bartikowski, 2012). For example, Passarelli et al. (2021) and Scanlon et al. (2020) found that adolescent girls rely more heavily on their support networks when stressed, while adolescent boys typically engage in activities that involve aggression and physical release. Women tend to be more socialised for interpersonal interaction and provide more social support to others (Noble et al., 2019; Scanlon et al., 2020). In contrast, men do not use the emotional display as much as women. While men report lower stress levels, and are less likely to report symptoms of stress, they are less likely to actively work at relieving or managing their stress (American Psychological Association, 2015). They also tend to respond in a more immediate, reactive fashion. Consequently, women are more engaged in emotional regulation and focus more on feelings, while men regulate their emotions to a lesser extent (Wang et al., 2019). However, it was also noted that men could feel a greater sense of achievement when they are engaged in their work (Brownhill et al., 2021; Geng & Midford, 2016).

### **Gender and Stress Among Pre-Service Teachers**

While more women than men work as teachers, they have been reported to have higher levels of job stress than men (e.g., Parveen, 2018). However, Geng and Midford (2016) research

indicated that male pre-service teachers have greater workload stress, and less job satisfaction as a teacher. This stress significantly impacted their retention (Kao, 2009; Ong & Cheong, 2009; Ruohoniemi & Lindblom-Ylänne, 2009). Researchers (e.g., Brember et al., 2002; Geng & Midford, 2016) found male teachers are more stressed than their female colleagues around the issues of support from friends, family and partners.

According to educators and researchers (e.g., Cole et al., 2019; Mengel et al., 2019; Brownhill et al., 2021), there is considerable benefit for school students who experience teaching by different gendered teachers. Therefore, there is much research seeking to understand the reasons for the shortage of male teachers. In the studies by McGrath et al. (2020), the authors investigated a theoretical framework for male teachers' shortage from four levels: the child, the classroom, the organisational and the societal levels. McGrath and Van Bergen (2017), Geng and Midford (2016) suggested the reasons could include apprehension related to issues of male sexuality in the school setting, and men often leave teaching because of the gender-related challenges they face (Cruickshank, 2020). Despite supportive policies and community demand for greater male teacher numbers, male teachers continue to face considerable challenges in a culture where there is a level of suspicion of men who choose work with children (Cruickshank, 2019; Gosse, 2011; McGrath & Van Bergen, 2017; McGrath et al., 2020). Gosse (2011) also suggested the reasons could include dealing with community concern about male sexuality in the school setting, and the need to cope with operating in a traditionally female-dominated profession.

Given the limited research, comparing the stresses faced by male and female pre-service teachers, the research question is asked: what are the current stressors for male and female pre-service teachers? This research is timely. It investigated the stressors faced by female and male pre-service teachers, who participate in teacher education programs, intending to gain a better understanding of the specific nature of the stresses experienced by each group. In the longer term, the findings can be used to develop gender-appropriate support for pre-service teachers.

## **Methods**

This study employed a mixed methods approach, comprising quantitative and qualitative research methodologies. This combines the benefits of both approaches, while countering the weaknesses of each when used separately (Creswell, 2013). Quantitative data was collected using the Perceived Stress Scale (PSS), developed by Cohen et al. (1983), and closed questions, in a purpose-designed questionnaire. Qualitative data were collected through open-ended questions in the questionnaire.

## **Participants**

Pre-service teachers studying at an Australian university, were invited to participate in the study: 311 pre-service teachers (56 self-identified males and 255 self-identified females), including early childhood; primary and secondary pre-service teachers from the School of Education at the participating university, provided data. This approximated the gender enrolment profile. Nearly half of the 56 male participants in this study were between 31 and 40 years old, while female participants were more evenly spread across the 18-to-50-year age range (see Table 1).

Age range	Male pre-service teachers		Female pre-service teachers	
	<i>n</i>	percentage	<i>n</i>	percentage
18- 25 years old	13	23.2%	57	22.5%
26-30 years old	5	8.9%	54	21.3%
31-40 years old	25	44.6%	78	30.8%
41-50 years old	9	16.1%	54	21.3%
Above 50 years old	4	7.1%	10	4.0%

Note: *N* = 311

**Table 1: The participants' age**

More than half of all pre-service teachers chose primary (Foundation to Year 6) as their teaching practicum settings. The stage of schooling and related settings chosen by male pre-service teachers varied significantly from female pre-service teachers,  $X^2(3) = 15.43, p < 0.01$ . More males chose middle and senior high schools than females, and fewer chose early years than females (see Table 2).

Placement settings	Male pre-service teachers	Female pre-service teachers
Early years	3.75%	12.34%
Foundation to year 6	51.85%	67.66%
Year 7 to year 9	23.93%	11.06%
Year 10 to year 12	20.37%	8.94%

Note: *N* = 311

**Table 2: Gender and types of placement settings (percentage)**

### Instruments

The PSS is a brief scale, consisting of only 14 items. The PSS-14 has displayed adequate reliability in different samples. Recently, researchers in Australia used PSS-14 to analyse the data from the "State-of-the-Nation" Stress and Well-Being Survey (SWBS) from 2011-2015 (Santiago et al., 2020). Later, a shorter version with 10 items (the PSS-10), which can be administered in only a few minutes, and is easily scored (Remor, 2006), has been used in various studies on stress levels among university students. For example, PSS-10 has been applied to 479 adults in Thailand to study collectivist eastern culture (Dao-Tran et al., 2017). In 2017, 94 participating UK university students aged (average age) around 28 completed PSS-10 and scored 10 to 25 in PSS-10 (Shaw et al., 2017). Recently in 2020, a study was also conducted to assess the psychometric properties of the PSS-10 among 192 healthy Saudi university students (Anwer et al., 2020). Although the shortest version of PSS (PSS-4) has also been used, and its validity has been tested by German researchers (Klein et al., 2016) and Korean researchers (e.g., Kim, 2016), the research shows inconsistency of the validity of the PSS-4. Thus, the present study used the PSS-10, to estimate the extent to which recent events in a respondent's life are appraised as stressful. Summarised by Cohen et al., (2004), the PSS does not raise the possibility of psychiatric problems, rather it is a well-regarded and widely used tool to measure work related stress by many researchers such as Cohen and Janicki-Deverts (2012) and Cohen et al. (2007). PSS-10 is not a diagnostic instrument, and there are no accompanying norm tables. It taps into the degree to which people believe events in their life are currently unpredictable, uncontrollable and overloading. The scale is appropriate for people in a variety of situations. The higher the scores, the more stressful the participants perceive their current life situation. In 2013, González-Ramírez et al. developed normative data, and their data indicated that the normative score range

on the PSS-10 for a general population was between 14.52 and 17.73.

In this project, the PSS-10 measured the pre-service teachers' current psychological stress associated with completing the theory assessments and their teaching practicum (Geng & Midford, 2015). Based on the results from PSS-10, a purpose-designed questionnaire was used in the present research to acquire information from the participant(s) about their demographic characteristics, opinions and experiences related to their study (Gay & Airasian, 2003; Leedy & Ormrod, 2005). The closed questions in the instrument allowed comparison across respondents. Open-ended questions were also included as they "allow the informants to answer from their own frame of reference, rather than being confined by the structure of pre-arranged questions" (Bogdan & Biklen, 1982, 135).

### **Procedure**

The data-gathering processes were piloted before the commencement of the main study. This ensured that the participants understood the instructions for completing the PSS-10 and the questionnaire items. The PSS-10 and questionnaire were administered online, with data gathering conducted from May to July 2014 and September to November 2020. This self-report and response-balanced instrument measured the level of perceived stress during the last month of the placement experience, using a 5-point response for each of the ten statements (0 = never, 1 = almost never, 2 = once in a while, 3 = often, 4 = very often). That is, the higher the score, the more stressful the participants perceive their current life situation. The questionnaire consisted of 16 closed questions, covering participants' demographic characteristics and the hours they spent on activities or work associated with their teaching practicum and theory units. The questionnaire also contained eight open-ended questions related to participants' opinions on how to improve the assessment of the placement and theory units.

The researchers used the Statistical Package for Social Science (SPSS) to analyse the responses. A t-test was used to determine the significance of the differences in stress levels of male and female pre-service teachers. One-Way ANOVA was used to investigate males' and females' stress levels with age groups. The Chi-square test was used to compare male and female pre-service teachers' hours spent on the tasks and their characteristics, such as their age group and their placement contexts. Correlations were used to find the relationships among the placement tasks and tasks in theory units. NVivo was used to analyse the qualitative data in this study, for example, students' comments about their activities on a teaching placement.

### **Results**

The 311 participants completed the ten items in PSS. Their average stress level score was 21.44, out of a possible 40 (see Table 3). This was higher than the norm range (14.52 and 17.73) reported by González-Ramírez et al. (2013). There was a significant difference between the stress levels of male pre-service teachers and female pre-service teachers, Mean (female) = 20.87, Mean (male) = 22.68,  $t(299) = 1.99$ ,  $p = 0.05$ . Male pre-service teachers in this study had a significantly higher level of stress than their female counterparts (See Table 3).

	n	Minimum	Maximum	Mean	SD
Combined gender stress level	311	5	40	21.45	6.14
Male stress level	56	6	40	22.68	6.55
Female stress level	255	5	40	20.87	5.97

Note: a) There were ten items in total. b) Each item ranged between 0 and 4 after reversing the four positive items 4, 5, 7 and 8.

**Table 3: Male and female pre-service teachers' stress levels**

It was found that the age of male pre-service teachers was significantly related to their stress level,  $F(4, 49) = 3.75, p = 0.01$ ; that is, the older the male pre-service teacher, the higher their stress level (see Table 4). In contrast to the male pre-service teachers, there was no significant relationship between female pre-service teachers and their age group,  $F(4, 240) = 2.36, p = 0.06$  (see Table 4).

	Male pre-service teachers (n=56)		Female pre-service teachers (n=255)	
	Mean	SD	Mean	SD
18-25 years old	17.25	4.71	19.65	5.88
26-30 years old	22.00	6.78	19.58	6.25
31-40 years old	24.00	6.49	21.92	5.45
41-50 years old	24.63	4.27	22.04	6.41
>50 years old	27.75	7.63	20.30	4.40

**Table 4: Pre-service teachers' age and stress level**

A one-way ANOVA was used to compare the age group and the out-of-university work commitment, and it was found that female pre-service teachers between the ages 31 to 50 worked significantly more hours than females in other age groups,  $F(4, 119) = 3.5, p = 0.01$ . It was found that there was no significant relationship between age and work commitments for male pre-service teachers,  $F(4, 13) = 0.91, p = 0.49$ .

The participating pre-service teachers were asked to indicate the hours they spent on both placement tasks and tasks in their theory units among five categories: 1-5 hours, 6-10 hours, 11-15 hours, 16-20 hours, and >21 hours (see Table 5).



Tasks		1-5 hours		6-10hours		11-15hours		16-20hours		>21 hours	
		M	F	M	F	M	F	M	F	M	F
Placement tasks	Online studying requirements (understand learning materials and complete assignments)	43.1	30.3	19.6	31.6	13.7	23.4	7.8	10.0	15.7	4.8
	Working with mentors	25.5	39.9	29.4	27.4	21.6	9.9	13.7	7.6	9.8	15.2
	Planning for teaching	33.3	28.1	37.3	32.9	17.6	22.4	3.9	10.1	7.8	6.6
Theory unit tasks	Online studying requirements (understand learning materials and complete assignments)	74.5	12.1	23.4	35.9	2.1	25.1	0	17.3	0	9.5
	Collaborate group work	18.0	74.2	32.0	18.2	14.0	3.3	14.0	3.8	22.0	0.5
	Working with lecturers	82.2	89.6	15.6	8.9	2.2	0.5	0	0	0	1.0

*Note: M = male pre-service teachers, F = female pre-service teachers*

**Table 5: Hours spent on placement and theory unit tasks (percentage)**

The placement tasks comprised: a) planning for teaching, b) understanding learning materials and completing assignments, and c) working with mentors. The tasks in their theory units comprised: a) collaborative group work, b) understanding learning materials and completing assignments, and c) working with lecturers. Table 6 presents the percentage of hours spent on placement and theory unit tasks by both male and female pre-service teachers. A t-test found that the investment of time around undertaking learning materials and preparation of placement materials by males differed significantly from that of the female cohort,  $t(143) = 2.07$ ,  $p = 0.04$  (See Table 6).

		Male pre-service teachers (n=56)					Female pre-service teachers (n=255)				
		2	3	4	5	6	2	3	4	5	6
Place- ment tasks	1. Online studying requirements (understand learning materials and complete assignments)	0.17	0.32*	0.71**	0.09	0	0.18*	0.36**	0.44**	0.19*	0
	2. Working with mentors		0.21	0.26	- 0.13	0.26		0.29**	0.33**	0.23**	0.26
	3. Planning for teaching			0.16	0.20	0.12			0.34**	0.28**	0.12
Theory unit tasks	4. Online studying requirements (understand learning materials and complete assignments)				0.01	0.11			0.17*	0.11	
	5. Collaborate group work					0.11				0.11	
	6. Working with lecturers										

Note: \*  $p < 0.05$ , \*\*  $p < 0.01$ .

**Table 6: Hours spent on placement and theory units tasks**

It was found 7% of males spent more than 21 hours on the task, compared to 4.8% of females, while 43.1% of male pre-service teachers spent only 1-5 hours on the task compared to 30.3% of females. There was a significant difference in the hours spent on online studying in theory units, with 74.5% of males spending as little as 1-5 hours per week, compared to 78.3% of females spending at least 6 hours and up to 20 hours per week on the same task. It was found that male pre-service teachers spent significantly more time on collaborative group work than females,  $X^2(8) = 16.88, p = 0.03$ . It was found 22% of the male pre-service teachers spent more than 21 hours on collaborative group work compared to 0.5% of the females.

It was found that male pre-service teachers, who spent more time understanding learning materials and completing assignments during their placement, also spent more time understanding learning materials and completing assignments in their theory units,  $r = 0.71, p < 0.01$ , and more time on planning for teaching,  $r = 0.32, p = 0.02$  (see Table 6).

Male and female pre-service teachers' awareness of and access to available support systems were investigated. Table 7 shows the numbers and percentages of male and female pre-service teachers' awareness of and access to different kinds of support provided at internal school/faculty of education and placement schools and/or universities.

Support available		Male pre-service teachers <i>n</i> = 56		Female pre-service teachers <i>n</i> = 255	
		<i>n</i>	percentage	<i>n</i>	percentage
Support provided at internal school/faculty of education level	Were aware and had access	23	41	94	37
	Aware but no access	28	50	133	52
	Not aware or had access	0	0	0	0
	Not sure	5	9	27	11
Support provided at placement schools and/or the universities	Were aware and had access	23	41	92	36
	Aware but no access	7	13	78	31
	Not aware or had access	21	38	59	23
	Not sure	5	9	26	10

Note: *N* = 311

**Table 7: Gender and their awareness of and access to available support (percentage)**

Although the male and female pre-service teachers reported similar awareness of and access to support provided  $X^2(3) = 5.28, p = 0.07$ , qualitative data showed different suggestions around the availability of support. This appeared to support the differences between male and female pre-service teachers and the associated hours spent on placement tasks and in the completion of their theoretical assignment tasks.

Male pre-service teachers concentrated more on completing online learning requirements. For example, eight male participants (14.3%) commented “*understanding learning materials and completing assignments*” is a critical component of the course, and suggested more support should be provided “*earlier in the course - right at the beginning*”.

The qualitative findings also show that 48 female students (18.8%) preferred interacting with other people, including peers, mentors and other available consultations. In contrast, four male students (7.1%) mentioned they preferred to have straightforward written guidelines. For example, the following male participant commented:

*More explicit guidelines from lecturers, as I found some of the assessments, such as group tasks for externals, were very difficult to organise and complete. Also, some of the assignments had limited real guidelines for us externals, and this left it too broad as to what we needed to do.*

Compared to male pre-service teachers, four female pre-service teachers (1.6%) provided suggestions about support in relation to working with mentors, schools, other students and lecturers. For example, one female participant provided the following suggestions in relation to working with mentors in school placement.

*Ensure you have a discussion and debrief with your mentors, as they have different levels of experience in their own personal work/life balance.*

Another female participant commented on the need to provide more guidance and structure in working with other students.

*More interaction with peers in the course. We all seem to have the same questions about designing a portfolio, but no one seems to have the answers. Weekly online tutorials, guided discussions or lectures would be helpful in supporting placement portfolio assessment.*

## Discussion

This paper has made five important findings in relation to male and female pre-service teachers' stress levels, the completion of assessments in placement and theory units, and their awareness of and access to support provided.

Firstly, this study found both male and female pre-service teachers have significantly higher stress levels than the general population. It is a concern that teaching is a stressful profession (Peixoto et al., 2020; Pozo-Rico et al., 2023). This finding shows pre-service teachers are experiencing high-stress levels, which may lead to burnout and attrition in the industry.

Secondly, this study found that male pre-service teachers had significantly higher stress levels than female pre-service teachers. Although this finding contrasts with some of the research (e.g., Parveen, 2018) that identified women to be generally more stressed than men, it accords with other research by Geng and Midford (2016), Cruickshank (2019) and McGrath et al. (2020) that men are more stressed in teacher education than women. The reason for this could be poorer coping strategies, the need by men to have greater control at work and their achievement-oriented priorities (Frantz & Holmgren, 2019). This finding also contributes to a better understanding of why there is a shortage of male teachers, as many either withdraw from the unit or even the whole course (Geng & Midford, 2016; Kao, 2009; Ong & Cheong, 2009; Ruohoniemi & Lindblom-Ylänne, 2009) when they become overwhelmed and stressed with their workload and the pressure to complete assessments.

Thirdly, this paper found that older male pre-service teachers experienced higher stress levels than younger ones. This was compared to female pre-service teachers who did not have this correlation between age and stress. Male pre-service teachers, who were above 50 years, experienced significantly higher stress levels than younger age groups. In contrast, there is no significant correlation between female pre-service teachers' age and their stress levels. Although there is no existing literature regarding this, reasons may be attributed to the perceived or real responsibility for the family income (Gosse, 2011), and minimal support from friends, family and partners when they embark upon a teaching career at an older age (Brember et al., 2002; Geng & Midford, 2016).

Fourthly, it was found that more male pre-service teachers chose to teach in school settings than female pre-service teachers. This choice by male pre-service teachers is likely influenced by widespread, but rarely expressed, concern about male sexuality in contexts involving children (Boring, 2017; Gosse, 2011; Mengel et al., 2020), and particularly concern over the sexual implications of men having responsibilities for young children in early childhood and junior primary education settings.

Finally, female and male pre-service teachers had similar awareness of, and access to, the support provided by the University and its School of Education, male and female pre-service teachers suggested the need for different types of support, owing to the differences between male and female pre-service teachers in hours spent on placement tasks and tasks in their theory units. Male pre-service teachers reported spending either significant amounts of time, or very little time, understanding learning materials and completing assignments in placements tasks and, and only very little time on tasks in their theory units. Moreover, 20% of the male pre-service teachers spent a large amount of time (more than 21 hours per week) working collaboratively with other students. In contrast, female pre-service teachers spent equal time on all the tasks.

The suggestions provided by male pre-service teachers were focused upon how to improve the provision of good quality learning materials, while female pre-service teachers not

only suggested good quality learning materials but also made suggestions pertaining to mentors', other students and university lecturers' support. This finding supports Scanlon et al. (2020)'s conclusion that female educators' lower level of stress derives from a good balance in social role orientation. This indicates that women tend to be more socialised for interpersonal interaction and provide, and thereby are more receptive to receiving, more social support (Noble et al., 2019; Scanlon et al., 2020).

Although both cohorts of pre-service teachers spent a great amount of time working collaboratively with other pre-service teacher colleagues, females were inclined to discuss their stress issues with others, including their mentors, other pre-service teacher colleagues and university lecturers. In contrast, males are typically less open in their emotions (Wang et al., 2019), which supports the evidence that male pre-service teachers preferred to deal with the stressors themselves. This provides some insight into why they preferred straightforward task guidance rather than seeking consultative support and guidance. This difference could also explain another finding in this paper: male pre-service teachers found collaborative group work more stressful than other tasks.

## **Conclusion and Future Research**

The research project was conducted in one Australian university and focused on the level of male and female pre-service teachers' stress levels. Although in this study, 56 male participants were a reasonable sample overall, comparing small cell sizes, such as four students in the 'over 50 years of age category presented difficulties in terms of power to detect the difference. Further, larger-scale research, conducted in a number of universities is needed to explore the differences across gender and age and support their generalisability. The sample size in the present study meant that reasons for stress were not investigated in great detail. Importantly, however, the findings suggest that more and better-targeted support is needed if the stress levels of male and female pre-service teachers are to be reduced.

The present research should be considered as an exploration of stress in pre-service teachers and indicates that different support should be provided accordingly due to the differences between male and female pre-service teachers. For example, greater clarity around course requirements should be emphasised with male students, and increased support should be provided for those over 50 years of age. Consultative support options should be prioritised for female students.

This suggests that a further larger scale study would be useful to identify how pre-service teacher education providers and schools can provide better support for both male and female pre-service teachers or how to best assist these groups in seeking other sources of support to reduce their stress level. The implications are that the provision of better support may improve the retention of pre-service teachers in teacher education programs and lead to an increased number of well-prepared teacher graduates.

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