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Perceived Value of Work-Integrated Learning on the Teaching Efficacy and Classroom Management of Pre-Service Teachers.

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Abstract:The aim of this study was to examine associations of teaching competence, autonomous motivation, and self-efficacy between two groups of pre-service teachers enrolled in a four-year Bachelor of Education degree program. One group participated in a Work-Integrated Learning (WIL) pathway and one who did not participate in a Work-Integrated Learning pathway. Self-reports of basic psychological needs, motivational regulations, and self-efficacy were completed by 116 pre-service teachers. Findings indicated that pre-service teachers who participated in the WIL pathway had higher levels of efficacy in classroom management, and had higher perceptions of identified regulation, demonstrating that they perceived WIL teaching sessions as a useful way to develop other characteristics of themselves. These findings suggest that exposure to authentic and experiential learning encounters through practical WIL experiences has a favourable impact on pre-service teacher competence, autonomous motivation, and self-efficacy. Incorporating authentic and practical opportunities such as WIL into teacher education programs presents a valuable and feasible option to foster broad skill development and teacher readiness.

Introduction

Teacher education programs are critical in preparing pre-service teachers to organise and operate learning environments for broad and diverse student populations. Ramirez (2020) acknowledged that teacher education institutions are expected to shape pre-service teachers in responding to innovations of the 21st century – implementing lifelong learning, guaranteeing the standard of education, and coaching students for prosperous skilled activities. A concern for education professionals, practitioners, and school leaders is the abundance of theory-based coursework and distinct lack of practice opportunities within teacher education programs to facilitate the preparation of classroom ready teachers upon graduation (Organisation for Economic Co-operation and Development [OECD], 2012). Practical in-class experiences provide pre-service teachers with the opportunity to connect what they learn at university with real world practice, and participation in such practical experiences has proven to be a valuable component of teacher preparation (Matoti & Junqueira, 2013; Rusznyak & Bertram, 2021). Practical in-class experience is typically referred to as Work-

Integrated Learning (WIL), a concept whereby pre-service teachers engage with authentic experiences in educational environments with a focus on the integration of theory into practice contexts (Fleming & Haigh, 2017). Rusznyak and Bertram (2021) recognised that WIL enables pre-service teachers to accumulate concrete classroom experience, provides opportunities to develop tacit knowledge through learning to teach, and exposes them to varied and contrasting situational learning contexts. In addition, WIL promotes collaboration between pre-service teachers through activities such as peer group reflection, the provision of peer feedback, and learning through observation. Against this background, WIL presents a feasible and collaborative model to bridge the gap between what pre-service teachers learn through theory-based coursework, to functioning in real work settings supported by pedagogical skill development embedded within their teacher education program.

Over the past 10 years the teaching profession and teacher education programs in Australia responsible for teacher training have received criticism from the Australian Government and educational bodies about a lack of quality teaching. For example, reports from education graduates, practicing teachers, principals, and education systems nationally suggest that teacher education programs do not adequately prepare graduates for real teaching, highlighting disconnect between theory and practice, and a lack of collaboration and consultation between universities, schools, and pre-service teachers (Barnes & Cross, 2018; Egeberg et al., 2020; Naylor et al., 2015). Educational bodies such as the Australian Council for Educational Research (ACER, 2015), the Australian Institute for Teaching and School Leadership (AITSL, 2015; 2016), and the Teacher Education Ministerial Advisory Group (TEMAG, 2015) have questioned teacher education program robustness and have subsequently identified professional deficiencies in graduating teachers. Amongst this criticism from educational regulators has been reference to a need for the quality of teachers entering the profession to be raised, with emphasis on including improved and better structured practical experience for pre-service teachers. Therefore, incorporating practical school-based learning experiences within teacher education curriculum through a WIL model offers a platform for pre-service teachers to develop familiarity with school environments, cultivate pedagogical skills, build relationships with local school and teachers, and strengthen connections between theoretical and practical learning.

In Australia, teacher education programs integrate mandatory Professional Experience placements (practicum) into their programs throughout the duration of the degree. Providers of teacher education programs must adhere to national accreditation and registration demands, yet there is a high degree of variability in the quality, timing, and length of mandatory practical experience in different states or territories (AITSL, 2019). AITSL (2019), as the federal statutory authority for teacher education, stipulate no fewer than 80 days as a minimum number of supervised practicum days in schools for undergraduate pre-service teachers. When compared to other undergraduate programs such as nursing, law, and medicine, the requisite 80 days of practical experience placement is substantially less. For example, nursing students are required to complete a total of 240 days Professional Experience placement across a three-year degree program, law students complete a 12-month work experience placement at the conclusion of their coursework, and the final two years for medicine students is comprised of practical clinical placements (University of Tasmania, 2022). Consequently, questions around teacher education program robustness and graduate readiness may be legitimate when considering this disparity in experiential and authentic learning during tertiary study for pre-service teachers. In 2021 the Quality Education Review reported that both pre-service teachers and practicing teachers wanted more time in schools, yet a growing problem with the provision of practical opportunities is that many schools do not have the teaching capacity to support pre-service teachers and cannot deliver a quality learning experience (Paul et al., 2021). In addition, associated costs

with formal school practicum experiences places increased financial constraints on universities, particularly with the current economic climate in many universities. This recognition is problematic for the teaching profession, but can be viewed as a chance to consider WIL as an approach to increase pre-service teacher exposure in schools.

Theoretical Framework

To examine teaching competence and autonomous motivation of pre-service teachers participating in a WIL program, the Self-determination Theory (SDT; Deci & Ryan, 2000; 2008) provides a useful framework. SDT has been applied in numerous studies to examine intrinsic and extrinsic motivation in educational contexts (Niemiec & Ryan, 2009). For instance, SDT provides a framework for education specific to pre-service teachers learning and intention to develop teacher competence, autonomy, and social relatedness. Within SDT the relationship between teaching competence, autonomous motivation, and WIL in the teacher education context are examined, as the central assumption of this theory is that positive associations between basic psychological needs and autonomous motivation are related to positive affective outcomes (Tschannen-Moran & Woolfolk Hoy, 2001; Vansteenkiste et al., 2020). Associations between teaching competence, autonomy, and social relatedness reflect positively towards teacher self-efficacy (Marshik et al., 2017). Niemiec and Ryan (2009) propose that intrinsic motivation is maintained by satisfaction of basic psychological needs for autonomy, competence, and relatedness. Within an educational context Deci and Ryan (2000) posit that intrinsic motivation derives from the specific activity but resides within an individual during the person-activity interaction (Sun & Chen, 2010). For instance, if a pre-service teacher feels competent through being familiar with the teaching content, autonomy in that they are given freedom to make pedagogical choices, and relatedness with students and supervising teachers through positive interaction and communication, their motivational regulation to teach is more autonomous, which may relate to higher self-efficacy in teaching (Bernadowski et al., 2013; Matoti & Junqueira , 2013; Tschannen-Moran & Woolfolk Hoy, 2001; Vansteenkiste et al., 2020). In contrast, if a pre-service teacher does not have feelings of competency regarding content, does not have autonomy with pedagogical choices, and limited relatedness with students and supervising teachers, then lower self-efficacy is a probable outcome, potentially leading to routine performance. Although the teaching profession can be dynamic and unpredictable, strategies for enhancing autonomy (e.g., providing choice and meaningful experiences for learning activities), competence (e.g., providing challenging tasks and external feedback, and relatedness (e.g., care and respect for students) can nurture preparedness (Niemiec & Ryan, 2009). Hence, a premise of the current study was to examine if WIL experiences were effective in developing and enhancing pre-service teacher autonomy, competence, and relatedness.

Motivation is a central component of SDT, and typically motivation is classified into intrinsic motivation and extrinsic motivation. Intrinsic motivation provides an important basis for learning, and involves engaging in behaviour because it is personally rewarding. In situations where individuals are not inherently satisfied intrinsic motivation may not be evident, and individuals will search for other reasons to learn or engage. Such situations evoke extrinsic motivation, which involves engaging in a behaviour to earn a reward or avoid punishment. Deci and Ryan (2008) propose that motivation is represented along a continuum based upon how people internalise, elaborate, refine, and integrate inner representations of themselves and their world; with motivation falling along the continuuum relevant to the degree that a behaviour reflects autonomy. Intrinsic motivation is governed by Internal

Regulation, which is represented through behaviour of individual interest, enjoyment, and provides inherent satisfaction (Deci & Ryan, 2000). Previous research indicates that being more intrinsically motivated or self-determined within a work environment, such as when teaching, is associated with a variety of positive outcomes (Ryan & Deci, 2009). In conjunction with the development of pedagogical skills, time spent engaging with school students, and gaining experience in school environments, the WIL pathway was also designed to enhance pre-service teacher characteristics such as self-efficacy, competence, and confidence. The extent to which pre-service teachers believe they can achieve specific teaching goals, referred to as self-efficacy, is most variable when undertaking their initial teacher education studies (Unal et al., 2017; Winters, 2012). Currently, there is little empirical research within educational literature investigating the influence of WIL on pre-service teacher outcomes.

Extrinsic motivation is governed by four distinct regulatory styles that vary in the degree to which they are experienced as autonomous: External Regulation, Introjected Regulation, Identified Regulation, and Integrated Regulation (Niemiec & Ryan, 2009). External Regulation is the least autonomous type of extrinsic motivation, and is enacted to obtain reward or avoid punishment. Introjected Regulation represents behaviours that are enacted because they involve ego and are reflected in one's self-esteem relevant to their behaviour and performance. Identified Regulation involves behaviours that are undertaken because they are considered personally important and hold value, such as the design and provision of learning activities that facilitate student development and success. The most autonomous type of extrinsic motivation is Integrated Regulation, whereby regulations are combined with other factors of the self, such as beliefs, values, and interests.

Teacher competence, autonomy, and social relatedness can impact teacher self-efficacy (Barni et al., 2019; Lauermann & Hagen, 2021). Teacher self-efficacy refers to one's belief in their ability to manage various obligations, challenges, and tasks related to the teaching profession; it fulfils a key role in influencing student outcomes such as achievement and motivation, and wellbeing in the work environment (Barni et al., 2019). Examples of such challenges are typically exhibited when providing instructions and communicating with groups of school students, managing classroom behaviour and conduct, and developing pedagogical skills to cater for differentiated learning. According to Clark and Newberry (2018) teacher self-efficacy is most impressionable during the period of undertaking the teacher education program, hence the importance of measuring pre-service teacher motivation and its impact on self-efficacy through exposure to WIL experiences.

The Current Study

To increase pre-service teacher practical learning opportunities, staff at the University of Tasmania, Australia established an innovative WIL pathway, embedded within multiple units across each year of the four-year Bachelor of Education (Health and Physical Education) undergraduate degree program. Pre-service teachers are exposed to theoretical content in their university tutorials and are then given the opportunity to apply this content during practical sessions with local school students in school environments. These school-based practical sessions are organised for the pre-service teachers during their tutorials later in semester, and also provide opportunities for them to review their peers teaching and to evaluate learning experiences as a group. This structure is in addition to the mandatory 80 days of Practical Experience placement that pre-service teachers must complete successfully to graduate. To our knowledge, few Universities in Australia embed WIL experiences of this structure and progression in the Health and Physical Education (HPE) context.

The WIL pathway aligns with the National Strategy on Work Integrated Learning in University Education (Universities Australia, 2015) and the Essential frameworks for enhancing student success (Higher Education Academy, 2015) in that the pathway facilitates the transition between preparing and operating in a high skills work environment. The WIL pathway offers a foundation for pre-service teachers to develop familiarity with school environments they are likely to encounter into the future and can foster motivation for teacher readiness (Doolan et al., 2019; Pearlman, 2013).

The WIL pathway embedded within multiple units across each year of the four-year Bachelor of Health and Physical Education undergraduate degree program is grounded in connecting educational theory with experiential practice. More specifically, the overarching goals are to optimise the theory-practice nexus, to prepare pre-service teachers for working with school students, and to develop a sociocultural lens towards the realities of teaching across different educational institutions. The pre-service teachers are not formally assessed on their pedagogical practice throughout most of the WIL pathway experiences, but formal assessment is incorporated for components such as lesson and unit plans, provision of feedback on learning to school students, individual and group evaluation, and reflection of pedagogical practice. In the course of engaging with WIL pathway experiences, pre-service teachers have opportunities to work with the teachers within the collaborating schools, to communicate and share learning and teaching ideas with them, and to receive feedback on their pedagogical practice from them. The key experiences on the WIL pathway include:

- First Year: two x Primary School classroom observations (semester two) focused on student motivation and engagement, and establishing effective learning environments,
- Second Year: six x Primary School 60-minute HPE lesson delivery (semester one) focused on the Game Sense approach, critical reflection, and peer review,
- Second Year: four x Primary School 45-minute HPE lesson delivery (semester two) focused on fundamental movement skills, lesson sequencing, and assessment,
- Third Year: five x Primary/Secondary School 60-minute lesson delivery (semester one), focused on gymnastics and Sport Education,
- Third Year: four-week Secondary School 45-minute health lesson delivery (semester two) focused on health education unit planning and delivery,
- Fourth Year: four-week Secondary School 60-minute HPE lesson delivery (semester one) focused on differentiated learning and feedback.

These WIL experiences were completed in addition to the structured Professional Experience placements that are undertaken during second, third, and fourth year by all undergraduate pre-service teachers. Professional Experience aims to help prepare pre-service teachers for the multitude of roles in primary, secondary, and early childhood educational environments. Professional Experience consists of supervised and assessed teaching practice, and aims to provide a diverse range of experiences. Across four-year degrees, undergraduate primary pre-service teachers undertake Professional Experience placements in both early childhood and primary settings, and undergraduate HPE pre-service teachers undertake Professional Experience placements in both primary and secondary settings. The structure of Professional Experience is detailed below:

- Professional Experience One: 20 days either at the conclusion of semester one or end of semester two (second year).
- Professional Experience Two: 30 days at the conclusion of semester one (third year).
- Professional Experience Three: 30 days at the conclusion of semester two (fourth year).

This study sought to examine associations of teaching competence, autonomous motivation, and self-efficacy between two groups of pre-service teachers enrolled in a four-year Bachelor of Education degree program; one group who participated in a WIL pathway

and one group who did not participate in a WIL pathway. Previous research on the influence of WIL experiences embedded within specific program units revealed that pre-service teacher self-efficacy improved through the practical experience gained (Bernadowski et al., 2013). In alignment with this evidence, it was hypothesised that pre-service teachers' participating in the WIL pathway would have higher perceptions of teaching competence, autonomy, more autonomous type of motivation, and higher self-efficacy compared to pre-service teachers not participating in the WIL pathway.

Methods

To determine pre-service teacher competence, autonomous motivation, and self-efficacy a quantitative survey was developed consisting of three instruments; the Basic Needs Satisfaction Scale (Deci & Ryan, 2000), Global Motivation Scale (Pelletier & Dion, 2007), and Teacher's Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001). Pre-service teacher consent and demographic details were collected prior to completion of the survey.

Participants

The participants for this study were 116 (81 females, 35 males) pre-service teachers enrolled in a Bachelor of Education degree at the University of Tasmania. All pre-service teachers from first year through to fourth year who were enrolled in a Bachelor of Education (n = 1000) in 2017 were invited to participate; therefore, comprising a broad age range of 18 years to 45 years (mean age of 27.7 ± 10.3 years). Demographic data including student age, sex, Bachelor of Education course (either early childhood education, health and physical education, primary education, or science and mathematics education), and year of study were collected. Within all undergraduate Bachelor of Education programs at the University of Tasmania pre-service teachers undertake mandatory Professional Experience placements throughout their period of study, but only Health and Physical Education pre-service teachers undertake the WIL pathway. Pre-service teachers undertaking both the early childhood education and primary education degrees do participate in WIL experiences during their programs of study, but these occur sporadically throughout the respective programs, are for shorter durations, and are not embedded within a formal WIL pathway. Information detailing WIL experiences undertaken prior to data collection were also gathered. WIL experience was then collapsed into two categories: the WIL pathway group was comprised of only HPE students whereas the non-WIL pathway group was made up of all the other Bachelor of Education programs as well as a small number of part time first year HPE students who had not yet completed a WIL.

Participants were eligible for inclusion in the current study if they had complete demographic data, WIL data, and questionnaire data. After the exclusion of those with incomplete data, 110 participants (95% of the overall sample) were included in the analyses.

Procedures

Pre-service teachers were informed through an email about the study by a member of the project team in September 2017. At this point the pre-service teachers were asked if they would like to be a part of this study. They were informed that their involvement would constitute completing a brief anonymous online survey between weeks 10-12 of the university's semester two. Those pre-service teachers who indicated that they wished to be a part of the study provided informed consent and were then directed to the online survey. Participation was voluntary and no extra credit was awarded for the participation. This study was approved by the Tasmanian Social Science Human Research Ethics Committee (Approval number H0016887).

Instruments

Basic psychological needs were assessed using the Basic Needs Satisfaction Scale (Deci & Ryan, 2000). The scale constitutes a 21-item questionnaire that includes three subscales, specifically competence, relatedness, and autonomy. The scale has the item stem "*Thinking about how it relates your life, indicate how true the following items are for you*". All subscales are rated on five-point scales, not at all true (1) to very true (7). The scale has been endorsed as a valid and relaible measure (Besharat, 2013; Johnston & Finney, 2010).

Motivational regulations were measured using the Global Motivational Scale (Pelletier & Dion, 2007) which was modified for the teaching context. The scale consists of 24 items comprising autonomous to non-autonomous regulations and has the item stem "*Using the scale below, select the number that best describes why you are currently studying to be a teacher*." Each item is rated on a five-point Likert-scale ranging from strongly disagree (1) to strongly agree (5). The factor structure has been supported in five independent studies (Pelletier & Dion, 2007).

Self-efficacy was be measured using the Teacher's Sense of Efficacy Scale (Tschannen-Moran & Woolfolk Hoy, 2001). The scale is designed to see what creates the most difficulties for teachers in daily school activities. The scale consists of 24 items, measuring teachers' efficacy in student engagement, instructional practices, and classroom management. Items are rated on a five-point Likert-scale ranging from nothing (1) to great deal (9). Previous validation studies (Bilali & Xhuvani (2015); Heneman et al., 2006) supported the conception and measurement of teacher's sense of efficacy scale.

Data Analysis

Normal distribution, outliers, and missing values were initially analysed. Next, descriptive statistics (means, standard deviations, and proportions) were used to describe the demographic characterisitcs and outcome measures of the sample overall and by WIL experience (non-WIL pathway versus WIL pathway).

To examine the associations between WIL experience (study factor) and each outcome factor - basic psychological needs, motivational regulation, and sense of self-efficacy, a series of linear regression models were used. Beta coffeicents and 95% confidence intervals were reported. The regression estimates are adjusted for age. These covariates were chosen according to a priori knowledge of association with the study factors and outcome variables, and because adjustment for these covariates changed the estimated coefficients

by > 10% in univariable analyses. Analyses were conducted using STATA software (version 16.0, Statacorp, College Station, TX).

Results

Descriptive Statistics

Study variables were approximately normally distributed and significant outliers were not detected based on the standardised values (± 3.00) (Tabachnick & Fidell, 2012). The characteristics of the participants are shown in Table 1. Overall, the sample were more likely to be female, undertaking a Primary or Health and Physical Education Bachelor of Education degree, and in their third or fourth year of study. Mean scores indicated that autonomy, competence, relatedness, and teacher self-efficacy were relatively high in both the non-WIL and WIL pathways. In contrast, perceptions of introjected, external regulation and performance were lower.

Characteristics	Total sample (n=110)	Non-WIL Pathway (n=72)	WIL Pathway (n=38)
Age (years), M (SD)	27.3 (9.7)	29.6 (11.2)	23.0 (4.8)
Sex, n (%)			
Male	34 (30.9)	9 (12.5)	25 (65.8)
Female	76 (69.1)	63 (87.5)	13 (34.2)
Course of study, n (%)			
Early childhood	11 (10.0)	11 (15.3)	0 (0.0)
Primary	53 (48.2)	53 (73.6)	0 (0.0)
Health & Physical Education	45 (40.9)	7 (9.7)	38 (100.0)
Science/Maths	1 (0.9)	1 (1.4)	0 (0.0)
Year of Study, n (%)			
1	17 (15.4)	16 (22.2)	1 (2.6)
2	20 (18.2)	13 (18.1)	7 (18.4)
3	44 (40.0)	24 (33.3)	20 (52.6)
4	29 (26.4)	19 (26.4)	10 (26.3)
Teacher self-efficacy[a], M (SD)			
Student engagement	6.6 (1.3)	6.7 (1.3)	6.4 (1.2)
Instructional strategies	6.8 (1.1)	6.7 (1.2)	7.1 (0.9)
Classroom management	6.7 (1.1)	6.5 (1.1)	7.0 (0.6)
Psychological needs[b], M (SD)			
Competence	4.9 (0.9)	4.9 (0.9)	5.0 (1.1)
Autonomy	4.7 (0.9)	4.7 (0.9)	4.7 (1.1)
Relatedness	5.3 (1.0)	5.3 (1.0)	5.4 (0.9)
Motivational regulation[c], M (SD)			
Intrinsic to know	3.9 (0.6)	3.9 (0.6)	3.8 (0.6)
Intrinsic to accomplish	4.0 (0.6)	4.0 (0.6)	3.9 (0.6)
Intrinsic to external stimulation	3.8 (0.6)	3.8 (0.6)	3.7 (0.6)
Extrinsic identified	3.1 (0.8)	2.9 (0.8)	3.3 (0.7)
Extrinsic introjected	2.8 (0.7)	2.9 (0.7)	2.7 (0.6)
Extrinsic external regulation	2.7 (0.8)	2.7 (0.8)	2.9 (0.8)

Abbreviations: WIL, work-integrated learning; M, mean; SD, standard deviation
[a]Likert scale from 1-9
[b]Likert scale from 1-7
[c]Likert scale from 1-5

Table 1. Characteristics of the sample

Regression Analysis

The cross-sectional associations between the WIL pathways and the basic psychological needs, motivational regulation, sense of efficacy variables are presented in Table 2. Compared to the non-WIL pathway group (reference group), the WIL pathway group reported significantly higher levels of efficacy in classroom management and significantly higher perceptions of extrinsic identified regulation. The associations remained significant after adjusting for age. There were no significant differences for psychological needs, perceptions of success and the other teacher self-efficacy and motivational regulation variables.

	Non-WIL Pathway (n=72)	WIL Pathway (n=38)
Teacher self-efficacy, β (95%CI)		
Student engagement	1.0 (Ref)	-0.17 (-0.71, 0.38)
Instructional strategies	1.0 (Ref)	0.39 (-0.08, 0.87)
Classroom management	1.0 (Ref)	**0.56 (0.12, 1.01)**
Psychological needs, β (95%CI)		
Competence	1.0 (Ref)	0.31 (-0.07, 0.70)
Autonomy	1.0 (Ref)	0.12 (-0.27, 0.50)
Relatedness	1.0 (Ref)	0.21 (-0.18, 0.60)
Motivational regulation, β (95%CI)		
Intrinsic to know	1.0 (Ref)	-0.06 (-0.34, 0.21)
Intrinsic to accomplish	1.0 (Ref)	-0.19 (-0.44, 0.06)
Intrinsic to external stimulation	1.0 (Ref)	-0.23 (-0.49, 0.03)
Extrinsic identified	1.0 (Ref)	**0.37 (0.06, 0.68)**
Extrinsic introjected	1.0 (Ref)	-0.26 (-0.57, 0.04)
Extrinsic external regulation	1.0 (Ref)	0.05 (-0.31, 0.40)

Abbreviations: WIL, work-integrated learning
*All analyses are adjusted for age
All bolded values are statistically significant at the 0.05 level

Table 2. Adjusted* beta coefficients and 95%confidence intervals for associations between the WIL pathways and the basic psychological needs, motivational regulation, and sense of efficacy variables

Discussion

This study aimed to examine associations of teaching competence, autonomous motivation, and self-efficacy, between two groups of pre-service teachers enrolled in a four-year Bachelor of Education degree program (one who participated in a WIL pathway and one who did not participate in a WIL pathway). The key findings of the present study were that pre-service teachers who participated in the WIL pathway had higher levels of efficacy in relation to classroom management, and had higher perceptions of identified regulation, indicating that they perceived WIL teaching sessions as a useful way to develop other aspects of themselves. These two key findings will now be discussed.

The findings showed that pre-service teachers who participated in the WIL pathway had higher levels of efficacy in classroom management compared to pre-service teachers without the WIL pathway. This result supports previous studies in teaching efficacy as teaching experience has been shown to correlate with higher teaching efficacy levels including classroom management skills within in-service teachers (Xiong et al., 2020). Seemingly, this occurrence is similar with pre-service teachers in this study as the WIL pathway reflected higher classroom management. According to researchers such as Slater and Main (2020) and Tschannen-Moran and Woolfolk Hoy (2001), effective class management comprises elements such as student grouping, the use of instructional materials and

equipment, student behaviour management, rule setting and enforcement, monitoring task engagement, and the organisation of physical learning spaces. In addition, effective teaching is executed using precise and coherent planning and preparation of classes, clearly defined pedagogies, and student evaluation while teaching (Barni et al., 2019; Egeberg et al., 2020; Lauermann & Hagen, 2021). These previously established associations might explain the positive relationship between the WIL pathway and teaching efficacy in classroom management. The WIL pathway facilitates teaching opportunities and thus experience by giving practical tools to control disruptive behaviour in the classroom and to get children to follow classroom rules.

As classroom management is a difficult task for pre-service teachers (Kwok, 2021; McGarr, 2021) another possible explanation for the difference in classroom management between the pre-service teachers with and without the WIL pathway could be that the WIL pathway provided opportunities to receive feedback to improve classroom management skills in a real school setting. The pre-service teachers may have benefitted from this feedback in two significant ways (Eisenman et al., 2015). First, it might have required them to identify different classroom management methods and apply them into practice while teaching. For example, establishing student attention and engagement using a verbal or non-verbal communication signal. Second, it might have provided a starting point for a classroom management skill preparation that pre-service teachers can implement in their future teaching. For instance, having equipment organised and set up with supporting written instructions or images prior to the commencement of a formal lesson (Eisenman et al., 2015). In the ideal scenario, pre-service teachers understood that they will continue to refine their classroom management skills as they gain more experience. All these feedback-related professional development opportunities were provided to the WIL pathway pre-service teachers while other pre-service teachers may only receive similar experiences later in schools through the Professional Experience or early in their teaching careers. This finding may have been strengthened by the WIL pathway facilitating regular opportunities for pre-service teachers to communicate, share experiences, and learn together. Such opportunities are not always possible when pre-service teachers undertake Professional Experience placements in schools under teacher supervision, but can vary depending on factors such as the stage of the teacher education program when the placement is occurring, pre-service teacher-supervisor relationship, and time constraints that can impact the structure of a school day. Evidence for this possibility can be seen in the reported benefits of pre-service teachers, and practicing teachers, learning and networking with their peers and colleagues (e.g., Cruickshank et al., 2022; Lamb, 2015; Sun et al., 2014). As a conclusion, to develop current teacher education programs, incorporating real-world classroom management courses in real school settings for pre-service teachers is a worthwhile endeavour for teacher educators (El-Abd & Chaaban, 2021; Kwok, 2021). This could more effectively prepare them to face the teaching requirements in today's schools.

The findings from the current study also showed that pre-service teachers who participated in the WIL pathway had higher perceptions of extrinsic motivation (identified regulation). Extrinsic motivation relates to activities undertaken for reasons other than inherent interest in the activity (Deci & Ryan, 1985), with identified regulation depicting situations in which individuals compel themselves to undertake an activity because they identify that an activity is worthwhile for some reason (Petrie & Govern, 2004). Possible reasons for these high perceptions could be due to spending more time in the school environment, working with their peers to promote and foster learning, along with interacting and collaborating with school students. Through the WIL pathway the provision of opportunities and allocated time for pre-service teachers to gain further practical experience in addition to Professional Experience placements, it is plausible that this enhanced extrinsic

motivation. This finding is supported by previous research investigating the intrinsic and extrinsic motivation levels of pre-service teachers in a Pakistani service training context, revealing that over time extrinsic motivation towards teaching and social status increased (Mansoor & Malik, 2015). Thus, it could be contended that greater exposure to practical opportunities such as WIL impact extrinsic motivation to become a teacher beyond simply individual reasons.

Another explanation for this finding in the current study could be a result of the participants who were in the WIL pathway group. The WIL pathway group was comprised of only HPE pre-service teachers, and previous studies have shown that those entering a physical education (PE) course at university, who desired sport and physical activity to be a part of their job, where more likely to be extrinsically motivated (Spittle et al., 2009). At a professional practice level this assertion is supported by Tulyakul et al. (2019) who found that when compared to non-HPE teachers, HPE teachers had superior organisational and pedagogical strategies, and higher teaching motivation. Given that those in the WIL pathway group were all HPE pre-service teachers, it is likely that they have entered this course at university because of sport and physical activity, hence why this group may have had higher perceptions of extrinsic motivation compared to the non-WIL pathway group. Further to this, a study by Spittle and Spittle (2014) showed that those who entered a generic Bachelor of Education degree but chose to specialise in primary PE as a part of that degree, also reported moderate to high scores for extrinsic motivation, especially identified regulation. This evidence also suggests that the WIL pathway group in the current study may have had higher perceptions of extrinsic motivation (identified regulation) because they are all HPE pre-service teachers. However, it is important to note that these previous studies did not compare their findings to those in other teaching degrees or those who chose not to specialise in PE as a part of their degree. Therefore, it is unknown whether those entering other teaching degrees at university or specialising in other teaching areas (outside of HPE) also have high perceptions of extrinsic motivation.

Limitations

A level of caution should be exercised when considering these findings as data collection was from a moderately small sample at one institution in a single Australian state. Generalising beyond the sample is difficult as other higher education institutions within Australia may have different approaches to measuring associations between psychological needs, autonomous motivation, and sense of self-efficacy in pre-service teacher education. All data were collected using self-report measures and thus the possibility that the perceptions of the participants may be exaggerated, influenced by social desirability bias, and represent feelings at the time of completion does exist. This study could be replicated on a much larger scale to collect more representative data that can be used to make suppositions about pre-service teacher psychological needs, autonomous motivation, and sense of self-efficacy in pre-service teacher education. Furthermore, a lager sample size could also provide deeper insight into educational models such as WIL and how associated experiences influence pre-service teacher preparation and readiness.

Conclusion

Pre-service teachers who participated in a WIL pathway had higher levels of efficacy in classroom management and extrinsic motivation compared to pre-service teachers without the WIL pathway. Against this background it is reasonable to declare that exposure to authentic and experiential learning encounters has a favourable impact on pre-service teacher competence, autonomous motivation, and self-efficacy. Future research should consider investigating the broad impact of WIL experiences in the development of pre-service teacher confidence and professional readiness, with the recommendation of utilising large sample sizes. In addition, exploration of pre-service teacher perceptions of WIL employing mixed methods options such as interviews, focus groups, or reflective journals is warranted to expand understanding and influence. Finally, gleaning stakeholder perceptions of the schoolteachers involved with hosting WIL relevant to the value of practical experiences such as WIL on pre-service teacher development offers the opportunity to excavate understanding and triangulate data.

Declaration of interest

The authors declare no conflict of interests.

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