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Examining the stage of degree, work experience and gender on the perceived employability of project management students

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Abstract

Purpose – Implicit in the design of university courses is an assumption that students will progressively develop discipline-specific skills, knowledge and attributes that foster employability. In the project management discipline, it is not well understood how each year of the university project management program contributes to students' beliefs about their own employability. To address this knowledge gap, the perceived employability of project management students was examined from the commencement through to the midpoint of their degree.

Design/methodology/approach – A repeated cross-sectional design was used to examine perceived employability at three time points: (1) before the commencement of the degree, (2) at the completion of the first year and (3) at the completion of the second year. Gender and work experience, which are known to be related to perceived employability, were also examined.

Findings – Students commencing their degree had significantly lower perceived employability than students who had completed their first and second years of study; however, perceived employability remained static across years one and two. Where a student had project-based work experience, there was a significant increase in some, but not all, of the perceived employability dimensions compared with students engaged in non-project work or not working at all. There were significant differences within the female cohort but not within the male cohort.

Originality/value – Findings challenge the assumption that perceived employability develops along a positive and linear trajectory throughout a project management degree. It is recommended that programs continuously monitor students' perceptions of their employability and consider how the curriculum can be modified to enhance it.

Keywords Gender, Higher education, Perceived employability, Project careers, Project management, Students, Work experience

Paper type Research article

Introduction

Project professionals are increasingly recognised as playing a critical role in the success and longevity of an organisation when they take on strategic and transformative responsibilities (Australian Institute of Project Management, 2026; Srivannaboon and Milosevic, 2006). Implicit in this notion of success is that the project professional will have the requisite knowledge, skills, attributes and experience to successfully deliver projects that align with the strategic and transformative requirements now demanded of the project professional. Furthermore, the project management profession is undergoing significant change with the automation of tasks leading to a shift away from administrative work and towards a stronger focus on soft skills, leadership capabilities, strategic thinking and business acumen

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(Nieto-Rodriguez and Viana Vargas, 2023; Nimmo and Usher, 2020; Pinto *et al.*, 2025). This dynamic and evolving work environment presents a challenge that the student must navigate as they prepare to enter their profession.

While project professionals are acknowledged to play a critical role in an organisation's success, a key risk for organisations is the inability to recruit skilled project professionals due to current and forecast talent shortages. The demand for skilled project managers is projected to outpace the supply of professionals by approximately 30 million worldwide by 2035 (Project Management Institute, 2025a). For students studying project management, this global shortage suggests that graduate employment opportunities are likely to be abundant. However, this also raises a potential risk – that graduates will be employed in project positions in which they are underqualified or underskilled, potentially leading to job dissatisfaction and intention to quit (Quintini, 2011). Given the significant responsibilities of a project professional, it is essential that students understand the fundamentals of project management and can assess their employability and readiness to take on a project role where they are likely to succeed. Understanding the requirements of the future project manager can help students to assess their perceived employability and readiness to take on such a role.

Project management is widely recognised as an interdisciplinary field that integrates theoretical and practical foundations from management, organisational behaviour, psychology, engineering, economics, systems theory, operations management, sociology and communication studies (Morris, 2013; Söderlund, 2011; Turner and Müller, 2005). Despite these multidisciplinary foundations, project management constitutes a distinct discipline because projects are temporary, non-routine and goal-oriented forms of organising characterised by complexity, uncertainty, interdependence and resource constraints (Bakker, 2010; Turner and Müller, 2003). Unlike ongoing operational functions, projects require the integration of technical, behavioural and strategic competencies to achieve unique outcomes within a time-based context (Project Management Institute, 2021). Furthermore, project management and operational management are distinct. While projects introduce new capabilities or outcomes, operational work supports the continued delivery of established products and services. Although the two domains often interact and may share resources, project management emphasises managing uncertainty and achieving defined deliverables, whereas operations management prioritises stability, standardisation and continuous performance (Association for Project Management, 2019; Project Management Institute, 2021). As a distinct discipline, project-based education is therefore situated as a structured pathway from which students can gain the requisite skills and knowledge required to successfully undertake project management.

It is the intent of universities that graduating students will be employable and capable of making positive contributions to their profession through the attainment of discipline-specific skills and knowledge (Tertiary Education Quality and Standards Agency, 2025). For students undertaking studies in project management, it is assumed that they will learn the requirements of project management throughout their degree and be able to apply these learnings once employed in the field. This approach to education assumes that the student progressively learns the skills and knowledge required to manage projects and will be employable and work-ready upon graduation. However, it is not well understood whether students are progressively building on these skill sets and consequently developing their employability.

Research aims

Universities play an integral role in assisting project management students to develop the knowledge, skills and attributes they need to feel employable and succeed in their chosen career pathway (Gilbert *et al.*, 2022). Assessing students' perceived employability throughout their degree enables faculty to design curricula that address the self-perceived shortcomings of students and support the development of employability in preparation for graduation. While perceived employability informs career decision-making behaviour (Blau, 1993;

Onyishi *et al.*, 2015), very few studies have examined students' perceived employability and how it develops over a project management university degree. The exception to this is Gilbert *et al.* (2022), who examined the perceived employability of project management students who had yet to commence their university studies. While the study of Gilbert *et al.* (2022) provides a helpful benchmark for the perceived employability of commencing project management students, it does not consider how students develop their perceived employability throughout the duration of their degree. To address this shortcoming, this research firstly aimed to examine the perceived employability of students from commencement through to the midpoint of their four-year project management degree. Examining the perceived employability of students at this point in time enabled the identification of employability-related areas requiring attention in the second half of the degree. Secondly, the study also considered work experience and thirdly, gender and how they may be associated with perceived employability. The literature on gender and work experience in relation to perceived employability and the rationale for their inclusion in the study are examined in the literature review.

Theoretical framework

Social Cognitive Career Theory (SCCT) provides a framework for understanding how university students form beliefs about their future employability by emphasising the role of cognitive and contextual processes in career development. Based on social cognitive theory (Bandura, 1995) and the career self-management model (Lent and Brown, 2013; McKenzie *et al.*, 2018), SCCT posits that self-efficacy and outcome expectations – individuals' beliefs in their capabilities and the anticipated results of actions – interactively influence career-related goals and behaviours such as job search effort and career planning (Lent *et al.*, 1994). When applied to perceived employability, recent research demonstrates that students' perceptions of their future employability are positively associated with their career self-efficacy and favourable outcome expectations, suggesting that stronger confidence in career competencies enhances employability beliefs and motivates proactive career behaviors (Gunawan *et al.*, 2025). This relationship underscores SCCT's assertion that perceived employability reflects external labour market conditions and is shaped by internal cognitive appraisals and environmental supports, thereby highlighting how educational experiences and self-belief mechanisms contribute to university students' readiness for the transition to work.

Literature review

Project management education

In the university context, traditional project management education models have been criticised for overemphasising technical processes while insufficiently developing behavioural, leadership and critical-thinking competencies (Crawford *et al.*, 2006; Kužet *et al.*, 2026; Özsoy and Sezgili, 2024). It is argued that effective project management education requires greater integration of soft skills, reflective learning, collaboration, communication and real-world project complexity into tertiary curricula (Berggren and Söderlund, 2008; Thomas and Mengel, 2008). Project management graduates can face capability gaps when transitioning into industry when university programs inadequately replicate the ambiguity, stakeholder complexity and interpersonal demands of real project environments (Thomas and Mengel, 2008). Learning environments that simulate projects are more effective than purely theoretical instruction in preparing students for uncertain and dynamic project contexts as they are better aligned with the realities of projects (Cicmil *et al.*, 2006). Consequently, higher education institutions are increasingly adopting learner-centred and practice-oriented approaches that integrate technical, contextual and behavioural competence development within project management programs, which enable students to develop their employability (Ramazani and Jergeas, 2015). Contemporary curricula have incorporated experiential learning, project-based assessment, group work, simulations and industry collaboration to

improve graduate employability and professional readiness (Afzal and Tumpa, 2025; Ingason and Eskerod, 2024; Kužet *et al.*, 2026; Ramazani and Jergeas, 2015; Shelley, 2015).

University programs are often designed around competency-based frameworks aligned with professional standards, such as those developed by the Project Management Institute, the Association for Project Management, and the International Project Management Association (Bredillet *et al.*, 2013; Pant and Baroudi, 2008). Together with this, project management education has continued to evolve across higher education institutions due to the increasing complexity, uncertainty and risk profile of projects and the need for well-developed technical and interpersonal project capabilities (Thomas and Mengel, 2008). Employers expect project professionals to demonstrate technical project management knowledge as well as leadership, communication, collaboration and strategic problem-solving capabilities relevant to complex organisational environments (do Vale *et al.*, 2018; Project Management Institute, 2025b). Therefore, a curriculum which seeks to develop students' ability to navigate through complex, uncertain and challenging project environments is considered important in developing employability (Turner *et al.*, 2019).

Perceived employability

It is acknowledged that in the extant literature, an array of terms are used to describe graduate preparation for employment. These terms include perceived and actual or real employability, work readiness and career readiness (Peersia *et al.*, 2024; Prikshat *et al.*, 2020; Smith *et al.*, 2016). While these terms are broadly related, they are theoretically distinct concepts in the context of graduates' preparation for employment. It is therefore prudent to briefly outline how perceived employability differs from other related concepts. Perceived employability refers to a student's perceptions and beliefs about their likelihood of securing employment upon graduation (Berntson *et al.*, 2006; Rothwell and Arnold, 2007). Similarly, Álvarez-González *et al.* (2017) contend that from the perspective of students, perceived employability is understood as the individual's subjective perception of their capacity for obtaining and retaining a job and obtaining a new one if required. In contrast to perceived employability, actual or real employability refers to the attainment of graduate employment which can be objectively measured through employment rates (Caricati *et al.*, 2016). Work readiness focuses on the skillset required of students to perform effectively in the workplace upon graduation (Caballero *et al.*, 2011; Peersia *et al.*, 2024). While a focus on skills is important, a limitation of the work readiness concept is that it does not consider the broader knowledge, attitudes and competencies that graduates require to be successful (Smith *et al.*, 2016). In contrast, perceived employability comprises discipline-specific skills, knowledge and attributes that foster employability. Career choice readiness is associated with employability but focuses on career decision making and the various phases in which an individual progresses. Phases include generating possible career alternatives based on the individual's interests and skills, reducing the career alternatives to a manageable number for more in-depth exploration and confirming one's choice and building a commitment to it (Hirschi and Läge, 2007). Undertaking a university degree is associated with a later stage of career decision making as the individual has committed to a career choice and is undertaking an aligned program of study.

In relation to graduate employability, Smith *et al.* (2016) contend that employable graduates are: "competent for autonomous, responsible and ethical practice; can work with other people effectively, fairly and cross-culturally; use information in judicious ways for specific work-related purposes; are willing to continue to learn to improve practice and are able to identify areas for self-development; have confidence and self-awareness to seek and gain employment in a job market" (p. 201). This description of an employable graduate by Smith *et al.* (2016) moves beyond a list of skills often associated with the work readiness concept and considers attitudes, attributes and a long-term approach to learning. Hillage and Pollard (1998) introduce the contextual element to accompany the internal lens, and contend

that an individual's employability is founded on four components which comprise of assets (knowledge, skills and attitudes), deployment (abilities such as career management skills, job search skills and adaptability), presentation (the ability to present to the market employability assets in an accessible way) and personal circumstances and external labour market. Knight and Yorke (2002) also acknowledge the inter-related elements of understanding, skills, efficacy beliefs (students' self-theories and personal qualities) and metacognition (self-awareness regarding students' learning and the capacity to reflect on, in and for action). In their definition of perceived employability, Vanhercke *et al.* (2014) identify five specific indicators: the subjective nature of the evaluation of employability, perception of employment possibilities, the maintenance of employment, a comparison of the individual's employment possibilities with the current employer compared to other employers, and the quantity and quality of available jobs.

The external labour market is identified as an integral component which shapes graduates' perceived employability (Berntson *et al.*, 2006; Hillage and Pollard, 1998; Vanhercke *et al.*, 2014). Berntson *et al.* (2006) contend that market fluctuations are important for the perception of employability. When jobs are scarce, perceived employability is likely to decrease, while a buoyant market where labour is in demand is likely to contribute to a higher level of perceived employability. As project professionals are in demand globally (Project Management Institute, 2025a), it is unlikely that the external labour market will have a significant negative impact on the perceived employability of project management graduates. Together with the shortage of project professionals, there are very few undergraduate project management programs offered in Australia and therefore demand for project management graduates is expected to outstrip supply. Nimmo and Usher (2020) identified 24 project management courses available from Australian universities, and of these only two are Bachelor courses.

Perceived employability influences career-related interests and career-choice behaviour and becomes a strong predictor of the ability to find employment (Álvarez-González *et al.*, 2017). Both Blau (1993) and Saks (2006) observed a relationship between perceived employability and job search behaviour, with job search behaviour defined as when an individual spends time looking for work (Blau, 1993). Job search behaviour can be divided into preparatory job search behaviour, in which an individual identifies information about jobs, employers and industries and active job search behaviour, where individuals are actually seeking employment (Blau, 1994). Onyishi *et al.* (2015) identified that perceived employability is positively associated with preparatory job search behaviour, which is relevant to students who are considering employment options during their degree and upon graduation.

Work experience

In a university setting, graduate employability is especially important because it is the aim of the university to graduate students who have acquired the requisite skills, knowledge and attributes to take up a role in their discipline of study (Australian Qualifications Framework Council, 2013). Furthermore, graduate employment is a key measure of success of undergraduate [Bachelor] programs in Australia (Baron and McCormack, 2024). In response to supporting the development of graduate employability, universities have recognised the role of work experience in developing employable graduates, and it is now commonplace to observe a range of "employability interventions" (Jackson and Bridgstock, 2021) such as work-integrated learning, internships and placements. However, Jackson and Bridgstock (2021) suggest that there may only be a tenuous relationship between university-led interventions and graduate employment outcomes.

One extra-curricular intervention that can aid graduate employability is paid work experience. The relationship between paid experience and perceived employability is likely to be facilitated through an awareness of the core skills expected by employers (Patrick and Crebert, 2004), which subsequently positively influences employment outcomes (Brosnan

et al., 2023). Smith *et al.* (2019) found that work experience influenced the employability elements of collaboration, informed decision-making, commencement readiness, lifelong learning, professional practice and standards and integration of theory and practice. In particular, the quality of the work experience was more important than the duration or structure of the experience (Smith *et al.*, 2019). Research examining the relationship between work experience and perceived employability has also found that experience in the workforce highlights what skills the student is yet to develop, and can lead to a decrease in perceived employability even though the student is progressively gaining discipline-specific skills and knowledge throughout their degree (Donald *et al.*, 2019; Jackson and Wilton, 2017; Smith *et al.*, 2019).

In the context of perceived employability, work experience can be considered as a form of self-regulated learning (Zimmerman, 2006). Self-regulated learning is conceptualised as a cyclical process comprising three phases: forethought, performance and self-reflection, through which learners proactively manage their cognition, motivation and behaviour (Zimmerman, 2000, 2002). In the forethought phase, goal setting, strategic planning and self-efficacy beliefs shape learners' engagement with tasks; in the performance phase, learners enact strategies, monitor progress and regulate effort; and in the self-reflection phase, they evaluate outcomes and make adaptive attributions that inform future learning (Zimmerman, 2000, 2002). These processes are closely linked to perceived employability, defined as individuals' beliefs about their ability to obtain and sustain employment because self-regulated learning fosters transferable competencies such as self-management, adaptability and continuous learning, which are valued in labour markets (Fugate *et al.*, 2004; Jackson, 2016). Importantly, work experience provides an applied context in which self-regulated learning skills are enacted and reinforced. Students with work experience are better able to set career-relevant goals, seek feedback, reflect on performance and translate learning into employability status, thereby strengthening perceived employability (Clarke, 2018). Accordingly, self-regulated learning supports effective learning and underpins how students interpret work experiences in forming judgements about their employability.

Gender

There is evidence to both support and refute the hypothesis that males' perceived employability is higher than females' perceived employability (Donald *et al.*, 2019; Pitan and Muller, 2019; Qenani *et al.*, 2014). In their study, Qenani *et al.* (2014) found that male students felt 50% more confident in their employability skillset compared to female students. A possible explanation for this finding may be that men have better options in the labour market and are therefore viewed as more employable, which accounts for their elevated level of perceived employability (Qenani *et al.*, 2014). Donald *et al.* (2019) and Pitan and Muller (2019) identified that male students are likely to earn more than their female colleagues upon graduation and this boosts their perceived employability. Amongst Chinese science, technology, engineering and mathematics (STEM) students, Wen *et al.* (2023) found that in addition to females' perceived employability being lower than men's, the perceived employability of males and females was improved through curriculum experience, extracurricular experience and faculty activities. Within the STEM discipline, female students have been found to have higher confidence in career identity and relevance of learning than male students, which has a positive impact on perceived employability (Ananthram *et al.*, 2024). In relation to work experience, Cifre *et al.* (2018) report that women had a higher level of perceived employability than men when they were unemployed, while male's perceived employability was higher than females when they were employed. However, other research has identified no significant differences between males' and females' levels of perceived employability (Caricati *et al.*, 2016; Yepes Zuluaga and Granada, 2023). In the project management field, little is known about the potential impact of gender on the perceived employability of students.

Method and instruments

Research approach

The research adopted a repeated cross-sectional design. In this design, data collection is conducted on the same target population at different points in time. At each time point, data is collected from a different sample of the target population, which enables an analysis of population changes over time (Pérez-Guerrero *et al.*, 2024; Wang and Cheng, 2020). A repeated cross-sectional design was deemed appropriate because participation was anonymous and it was not possible to link participants to waves of data collection. Additionally, the research sought to examine students' perceptions of their perceived employability as they progressed through their project management bachelor degree.

Sampling strategy

Students undertaking a four-year bachelor-level degree in project management at a large urban university in Australia were invited to participate in the research. The program is accredited by the Global Accreditation Center for Project Management Education Programs (Project Management Institute, 2025c) and structured around the project management "Body of Knowledge" (Project Management Institute, 2021). Furthermore, commencing in their first year, students are advised how the curriculum is aligned with the skillsets outlined in the Talent Triangle (Project Management Institute, 2025b). In the first year of the degree, students are introduced to the basic concepts of project management. During the second year of the degree, the curriculum focuses on technical skills which enhance students' employability, such as scheduling, coordinating and contract administration. Students are also introduced to the industries in which project management is practised, as well as industry context and project type. The third year of the degree develops soft skills and the fourth year explores contextual application of project management skills. This study focused on the early to mid-stage of the project management degree.

Ethics approval for the research was received from the university's Human Research Ethics Committee. In accordance with ethical procedures, students were provided with a research description outlining their rights as study respondents. Students were advised that their participation in the research was voluntary, and no identifying information was asked of respondents, such as name or student number, thereby ensuring respondent anonymity. To counter any potential teacher-student power relationships, a faculty member who was not instructing the class described the purpose of the study and administered the paper-based survey during the first class of the semester.

Instrument and analysis

The survey comprised two sections. The first section asked questions related to demographics, year of study and work experience. For the work experience question, three response options were provided: (1) not working, (2) working in a paid role not related to project management and (3) working in a paid role related to project management. The second section measured perceived employability using a 20-item scale from Smith *et al.* (2019) consisting of six employability dimensions: collaboration, informed decision making, commencement readiness, lifelong learning, professional practice and standards and integration of theory and practice. The dimensions outlined by Smith *et al.* (2019) are aligned with the notion that perceived employability comprises multiple elements such as attitudes, attributes and a long-term approach to learning (Hillage and Pollard, 1998; Knight and Yorke, 2002; Vanhercke *et al.*, 2014). The scale does not measure external market conditions; however, this does not present as a major limitation given the current and forecasted global project management skills shortage (Project Management Institute, 2025a). Scale items are assessed on a 5-point Likert scale ranging from (1) never to (5) all the time. All scale dimensions and associated items are outlined in the Appendix.

To gain an overall measure of perceived employability, all items are summed and a mean score is calculated. For each of the six dimensions, items are summed and a mean score is calculated. A higher score indicates better perceived employability. The employability dimensions have previously demonstrated satisfactory internal reliability consistency, ranging from $\alpha = 0.77$ for commencement readiness and integration of theory and practice to $\alpha = 0.89$ for lifelong learning (Smith *et al.*, 2016). In this research, the survey instrument achieved excellent internal consistency reliability ($\alpha = 0.92$) and the six dimensions ranged from $\alpha = 0.73$ for collaboration to $\alpha = 0.90$ for lifelong learning, as outlined in Table 2 (see results section).

Data were collected at three points in time, as shown in Figure 1:

(1) Time 0: Perceived employability was measured before the commencement of the project management degree. Data collection took place during university orientation week.

(2) Time 1: Perceived employability was measured after students had completed the first year of their degree. Data collection took place during the first week of the second year of their degree during class.

(3) Time 2: Perceived employability was measured after students had completed the second year of their degree. Data collection took place during the first week of the third year of their degree during class.

Analysis of variance was conducted to explore if perceived employability differed across the three data collection time intervals. To examine if there were differences between work experience and year of study on perceived employability, analysis of variance was undertaken. A two-way between-groups analysis of variance was conducted to explore the impact of year of study and type of work experience on perceived employability. To examine if there were differences between perceived employability and gender, an independent-samples *t*-test analysis was undertaken. For one-way analysis of variance and independent-samples *t*-test analyses, the pairwise deletion procedure was used for cases that contained missing data.

Results

Survey respondents

Table 1 summarises the characteristics of the sample. A total of 236 surveys were completed, which represented a 56% response rate. More males than females completed the survey at all time points, which is reflective of the project management student cohort in which female participation typically ranges from 26% to 30%. In relation to employment, project-based work experience increased as the student cohort progressed through their program of study. Before commencement of the degree, 3% of respondents had a project-related job compared with 31% after year two of the degree.

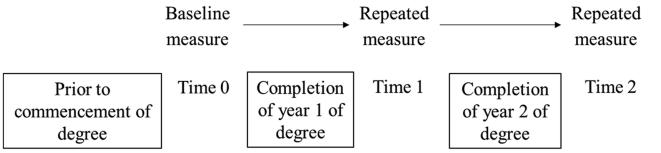

Figure 1. Repeated cross-sectional design. Source: Authors' own work

Table 1. Demographic characteristics of the sample

Year of degree	*Respondent (N = 236)*	*Gender*			*Work*		
		Male	Female	No response	Project related	Not project related	Not working
0	93	65 (70%)	28 (30%)	–	3 (3%)	64 (69%)	26 (28%)
1	72	40 (56%)	31 (44%)	1	9 (12%)	49 (68%)	14 (20%)
2	71	43 (60%)	28 (40%)	–	22 (31%)	42 (59%)	7 (10%)

Source(s): Authors' own work

Perceived employability at stage of degree

Mean, standard deviation and ANOVA results for stage of degree for perceived employability are shown in Table 2. Figure 2 shows the perceived employability dimension means according to stage of the degree.

One-way analysis of variance (ANOVA) indicated a statistically significant difference for perceived employability for stage of degree, and the effect size was medium. Post-hoc comparisons using the Tukey HSD test indicated significant differences between Time 0 and Time 1, and Time 0 and Time 2. There was no significant difference between Time 1 and Time 2, suggesting that perceived employability was static across the second year of the project management degree.

For all six dimensions of perceived employability, ANOVA results indicated a statistically significant difference according to stage of the degree. The effect size was small for collaboration and medium for the other dimensions.

Post-hoc comparisons using the Tukey HSD test indicated a significant difference between Time 0 and Time 1 for informed decision making ($p = 0.000$), commencement readiness ($p = 0.001$), lifelong learning ($p = 0.007$), professional practice and standards ($p = 0.002$) and integration of theory and practice ($p = 0.001$).

Post-hoc comparisons using the Tukey HSD test indicated a significant difference between Time 0 and Time 2 for collaboration ($p = 0.017$), informed decision making ($p = 0.005$), commencement readiness ($p = 0.016$), professional practice and standards ($p = 0.004$).

For all dimensions, post-hoc comparisons using the Tukey HSD test indicated no significant differences between Time 1 and Time 2, indicating that perceived employability was static across the second year of the project management degree.

Perceived employability and work experience

Table 3 shows the mean and standard deviation for perceived employability and type of work experience, as well as the results of ANOVA analysis. Figure 3 shows the mean scores of the perceived employability dimensions according to type of work experience. There was a statistically significant difference for four of the six dimensions of perceived employability: commencement readiness, lifelong learning, professional practice and standards and integration of theory and practice. Effect size was large for commencement readiness, medium for lifelong learning and small for professional practice and standards and integration of theory and practice. No significant differences were found for collaboration and informed decision making.

Post-hoc comparisons using the Tukey HSD test indicated significant differences between respondents who worked in a project-related job and those who didn't work for three dimensions of perceived employability: commencement readiness ($p = 0.000$), lifelong learning ($p = 0.001$), professional practice and standards ($p = 0.035$).

A significant difference was also found between respondents who worked in a project-related job and those whose work was not related to project management for three dimensions

Table 2. Mean, standard deviation, and ANOVA results for stage of degree for perceived employability

	Items	α	Time 0 (n = 88) M	SD	Time 1 (n = 71) M	SD	Time 2 (n = 67) M	SD	*df*	*F*	*p*	*η2*
Perceived employability	20	0.92	3.88	0.52	4.22	0.48	4.16	0.47	2, 223	10.7	<0.001	0.08
Collaboration	4	0.73	4.26	0.50	4.44	0.50	4.47	0.45	2, 229	4.60	<0.011	0.03
Informed decision making	4	0.81	3.75	0.65	4.16	0.57	4.05	0.60	2, 232	10.15	<0.000	0.08
Commencement readiness	2	0.90	3.28	0.92	3.78	0.80	3.67	0.94	2, 230	7.25	<0.001	0.05
Lifelong learning	3	0.84	3.63	0.91	4.02	0.73	3.90	0.67	2, 233	5.02	<0.007	0.04
Professional practice and standards	5	0.84	4.16	0.61	4.45	0.48	4.43	0.48	2, 230	7.72	<0.001	0.06
Integration of theory and practice	2	0.77	3.76	0.77	4.20	0.74	4.02	0.70	2, 223	7.44	<0.001	0.06

Source(s): Authors' own work

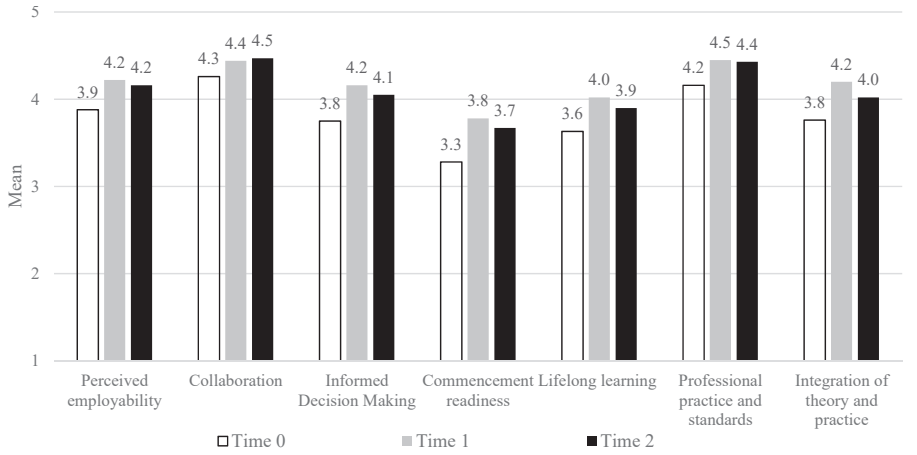

Figure 2. Perceived employability dimensions according to stage of degree. Source: Authors' own work

Table 3. Mean, standard deviation, and ANOVA results of perceived employability dimensions according to type of work experience

	Project related work (n = 34)		Not project related work (n = 155)		Not working (n = 47)		*df*	*F*	*p*	*η2*
	M	SD	M	SD	M	SD				
Collaboration	4.51	0.43	4.39	0.49	4.25	0.55	2, 229	2.97	<0.53	–
Informed decision making	4.18	0.50	3.97	0.66	3.84	0.65	2, 229	2.95	<0.54	–
Commencement readiness	4.25	0.61	3.47	0.90	3.33	0.95	2, 230	13.05	<0.000	0.10
Lifelong learning	4.28	0.65	3.80	0.78	3.64	0.90	2, 233	7.04	<0.001	0.05
Professional practice and standards	4.51	0.54	4.33	0.54	4.20	0.60	2, 233	3.12	<0.04	0.02
Integration of theory and practice	4.28	0.68	3.93	0.76	3.91	0.80	2, 230	3.12	<0.04	0.02

Source(s): Authors' own work

of perceived employability: commencement readiness (p = 0.000), lifelong learning (p = 0.004) and integration of theory and practice (p = 0.043).

Stage of degree and type of work experience on perceived employability

A two-way between-groups analysis of variance was conducted to explore the impact of year of study and type of work experience on perceived employability. The interaction effect between year of study and type of work experience was not statistically significant for overall perceived employability or the six dimensions: perceived employability – F (4, 217) = 1.13, p = 0.33; collaboration – F (4, 223) = 0.58, p = 0.67; informed decision making – F (4, 226) = 0.29, p = 0.88; commencement readiness – F (4, 224) = 1.60, p = 0.17; lifelong learning – F (4, 227) = 0.98, p = 0.41; professional practice and standards – F (4, 224) = 1.36, p = 0.24; integration of theory and practice – F (4, 227) = 0.82, p = 0.51.

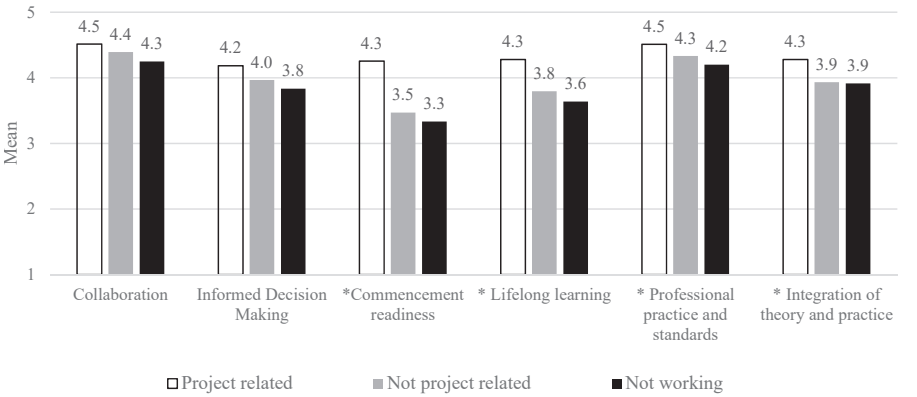

Figure 3. Perceived employability dimensions according to type of work experience. "*"Denotes significant differences were identified between groups. Source: Authors' own work

Perceived employability and gender

An independent-samples *t*-test was conducted to examine perceived employability at Time 0, Time 1 and Time 2 for males and females and Table 4 shows the means, standard deviations and *t*-test results. No significant differences were found between gender groups for any of the time points.

To enable a finer-grained understanding of perceived employability across the three time points for each gender group, a one-way analysis of variance was conducted. Results are shown in Table 4. A statistically significant difference was not found for the male group. In contrast, a statistically significant difference was found for the female group and the effect size was large. Post-hoc comparisons using the Tukey HSD test indicated a significant difference between Time 0 and Time 1 ($p < 0.001$) and Time 0 and Time 2 ($p = 0.001$) for the female group.

Discussion

Perceived employability development is not linear

The first aim of our study examined whether perceived employability differed according to year of study. Our findings indicate that in the project management bachelor's degree,

Table 4. Perceived employability mean, standard deviation, *t*-test and ANOVA results for gender according to stage of degree

	Males		Females		*t*-test			ANOVA			
	M	SD	M	SD	*t*	df	*p*	*df*	*F*	*p*	*η2*
Time 0	3.95	0.49	3.71	0.56	86	7.95	0.054				
Time 1	4.17	0.51	4.29	0.46	68	−0.99	0.32				
Time 2	4.12	0.45	4.22	0.49	65	−0.86	0.39				
Males								2, 138	2.93	0.06	–
Females								2, 81	10.59	<0.001	0.20

Source(s): Authors' own work

perceived employability did not incrementally increase between the first and second year of study. While there is no project-related research to draw on to contextualise our findings, the findings of research undertaken in other university degrees are consistent with ours. For example, Howell *et al.* (2024) found that the perceived employability for first and second year engineering students was almost identical, however, the reasoning for this was unclear. Bennett *et al.* (2022) found that the perceived employability of business students decreased as they progressed through their programs. Bennett *et al.* (2022) indicate that the decrease may be due to students considering their career and study commitment as they move through their program of study, as well as a reduction in perceived program relevance, program and self-awareness, identification of commitment and career exploration and awareness.

The perceived employability of the project management student cohort may have remained static across the first two years of the program for a number of reasons. During the first year of their program, the cohort is introduced to the foundational knowledge areas as outlined in the project management body of knowledge (Project Management Institute, 2021). It would be expected that the cohort may feel somewhat unprepared to take on a project management role after they have completed only their first year of a four-year program. In the second year of the program, courses are more comprehensive and the student cohort is expected to attain a greater depth of understanding of the technical aspects of project management such as quality management and project administration. This will likely improve the cohort's understanding of project management and contribute to perceived employability. Guided by the proposition of Crawford and Pollack (2007) that projects are generic in nature but fundamentally unique, during their second year, students are also introduced to various project methodologies such as waterfall and agile and the different project types such as construction and engineering, telecommunications and health. Students are also introduced to the various industries in which project management is practiced and potential similarities and differences between industries are explored (Australian Institute of Project Management, 2026; Brox, 2011). By drawing on SCCT and internal cognitive appraisal (Lent *et al.*, 1994), it is possible that a new awareness of the breadth and skillset required of project professionals may have constrained rather than contributed to perceptions of employability. Of note is that the "commencement readiness" dimension had the lowest mean score of all dimensions for both time 1 and time 2, and that it decreased in time 2. Further research is required to better understand the factors influencing the internal cognitive appraisal of the student cohort, and to determine whether curriculum adjustments are recommended to enhance perceived employability.

Enhancing perceived employability through work experience

The study also aimed to examine if work experience was associated with perceived employability for the project management student cohort. The results indicated that being employed in project-based work enhanced perceived employability. Specifically, commencement readiness and integration of theory and practice were significantly better for participants with project-related work experience than those with no work experience or work experience not related to project management. Consistent with our findings, Smith *et al.* (2019) also found that work experience influenced the employability elements of commencement readiness and integration of theory and practice. Project-related work experience can be positioned as a form of self-regulated learning (Zimmerman, 2006) which can enhance perceived employability. The relationship between work experience and perceived employability is likely to be facilitated through an awareness of the core skills expected by employers (Patrick and Crebert, 2004), which subsequently positively influences employment outcomes (Brosnan *et al.*, 2023). Drawing on SCCT, having an opportunity to bridge project management theory with practical application in a work setting fosters confidence and self-efficacy. Furthermore, participants with work experience are better able to reflect on performance and translate learning into employability status, which functions to strengthen perceived employability (Clarke, 2018). Given its impact on perceived

employability, our results indicate that project-based work experience alongside university study is likely to be an important component of perceived employability for the project management cohort.

Impact of gender

A further aim of the study was to explore if gender is associated with perceived employability. Our results are consistent with the findings of previous studies which have identified no significant differences between males' and females' level of perceived employability (Caricati *et al.*, 2016; Yepes Zuluaga and Granada, 2023). In contrast, Gunawan *et al.* (2025) found that gender played a significant role in employability attributes. Gunawan *et al.* (2025) identified that female students reported more confidence in their self-awareness relative to career, their program awareness relative to career and in their identification with career commitment than the male students. However, Gunawan *et al.* (2025) do not distinguish at what point in their degree the female and male students were. While our research found no differences in perceived employability between males and females at the mid-stage of their project management degree, it is possible that in the later stages of their degree, a significant difference in perceived employability may emerge which warrants further examination.

It is anticipated that as the student cohort continues to learn about the profession of project management and how gender can impact on employment, females may be impacted. This is the case as the Project Management Institute (2023) reports that male project managers outnumber their female counterparts around the world and in every sector. Gender is known to be a potential structural barrier for pursuing occupational goals, particularly when women are pursuing roles in male-dominated industries (Kirkpatrick Johnson and Mortimer, 2002). Furthermore, the Project Management Institute (2023) reports that globally, women earn about 20% less than men for work of equal value and that female project managers earn less than male project managers in every country surveyed. As females progress into the later stages of their project management degree, it will be important to support self-efficacy beliefs which contribute to perceived employability and career outcomes. Initiatives such as mentoring, confidence-building and support structures may be beneficial (Bonesso and Bressan, 2026; Hartman and Barber, 2020).

To enable a finer-grained analysis of the data, within-gender analysis was undertaken and identified no significant difference in perceived employability for males across the three time points of data collection. In contrast, there was a significant difference for females. This finding suggests that females were more likely to experience an increase in perceived employability from degree commencement through to the mid-point of their project management degree than males. In the early stages of the degree, females were able to progressively develop their career self-efficacy and favourable career outcome expectations (Lent *et al.*, 1994). For future research, it will be important to examine the trajectory of perceived employability of males and females as the student cohort moves into the later stages of their degree, given the gendered challenges present in the project management profession and the potential impact on career goals (Project Management Institute, 2023).

Conclusion

The objective of the research was to examine repeated cross-sectional data for significant changes in perceived employability, and to understand the role of gender and work experience in perceived employability over the first two years of a project management degree. Our results indicate that the development of perceived employability did not occur on an upwards and linear trajectory for the project management student cohort. Further research is required to better understand why perceived employability did not differ between first and second year and determine whether curriculum refinement is required.

Following the first year, project management programs can potentially implement a range of curricular interventions to support the development of perceived employability. Interventions could include industry-sponsored projects embedded within coursework, simulated project environments which reflect the actuality of projects that require students to manage scope, schedule, risk, stakeholders and uncertainty, interdisciplinary projects involving students from engineering, business, construction, information technology and design disciplines and reflective employability activities that encourage students to evaluate and document their developing project competencies. These interventions can potentially support students to develop project capabilities and confidence in their ability to apply those capabilities in simulated professional settings.

Our results also indicated that perceived employability has a positive association with work experience, and that degree-relevant work was found to have the strongest impact on perceived employability. To support employability, project management programs can facilitate structured opportunities for students to engage in project-related work before graduation, such as internships and cadetships. In the faculty in which this research was undertaken, students can seek employment opportunities through an Employer of Choice program (RMIT University, 2026). Through this program, employers provide meaningful paid employment that encourages professional development. Employers also support students to balance work and study commitments.

While no differences were found between gender and perceived employability at the mid-point of the project management degree, it is suggested that the self-efficacy of female students be monitored throughout the later stages of their degree, given that male project managers outnumber their female counterparts around the world and in every sector and are paid more. It will be important that females are supported so that perceptions and beliefs about possibilities to succeed in obtaining employment upon graduation are positive. Alongside these interventions, longer-term industry-based interventions can support more women to enter the profession so that women are no longer a minority. Furthermore, industry can support the removal of the gender pay gap and base remuneration on position, competency and results rather than on gender.

While the study contributes to the perceived employability of project management student cohorts, it has some limitations. The study did not examine how the curriculum was related to the six employability dimensions and further research is recommended to explore perceptions and experiences of the student cohort. Finally, external work characteristics can be examined to better understand how they shape the perceived employability of the project management student cohort, such as the impact of emerging technology and artificial intelligence. As the study was undertaken at an Australian university with project management degree students, findings may not be generalisable to student cohorts in other disciplines or countries. As the research was undertaken with students at the mid-point of their degree, future research is recommended to explore how perceived employability continues to evolve in the later stages of the project management degree and what aspects of the curriculum are particularly helpful in shaping the attainment of employment upon graduation.

Appendix

Employability scale from: Smith *et al.* (2019). Placement quality has a greater impact on employability than placement structure or duration. *International Journal of Work-Integrated Learning*, 20(1), 15–29.

Collaboration

(1) Make sure everyone feels heard in group discussions.

(2) Interact appropriately with people from different levels of management/leadership/seniority in a workplace.

(3) Interact effectively and respectfully with people from other cultures.

(4) Learn from and collaborate with people representing diverse backgrounds or viewpoints.

Informed decision making

(5) Appraise the quality of information I obtain e.g. from the web, from books or from other people.

(6) Use information and my professional or workplace knowledge to come to reasonable decisions and then act on these.

(7) Weigh up risks, evaluate alternatives, make predictions from data and apply evaluation criteria to options.

(8) Collect, analyse and organize information.

Commencement readiness

(9) Effectively seek work relevant to my studies.

(10) Overall work readiness confidence.

(11) Able to obtain work relevant to studies.

Lifelong learning

(12) Identify the knowledge I lack/need to improve to be effective in the workplace.

(13) Identify the skills I lack/need to improve to be effective in the workplace.

Professional practice and standards

(14) Recognise ethical practice in the workplace.

(15) Identify the standards of performance or practice expected in the workplace/my profession.

(16) Develop a personal code of values and ethics.

(17) Interpret and follow workplace procedures.

(18) Take responsibility and be accountable for my workplace or professional practice, actions and decisions.

Integration of theory and practice

(19) Judge the applicability of the knowledge gained in my studies to the workplace.

(20) Apply knowledge and skills gained in my studies to the workplace.

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