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Reflecting on graduate career pathways develops employability skills

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Abstract

Providing students the opportunity to explore their career options is fundamental to career planning particularly in generalist degrees with a variety of employment destinations. We utilised career information about university alumni to underpin a learning activity where undergraduate students worked in small teams to analyse career pathways of graduates from their own STEM or Health degrees and identify patterns and strategies utilised by others to achieve graduate employment. Students presented their observations and lessons learned in a group presentation and individual written reflection which were assessed as part of a broader subject. In this study we thematically analysed students' written reflections from two consecutive cohorts in 2022-2023 to investigate what students learned from analysing the pathways and how this may have impacted their perceptions of employability. Students reported multiple learnings from the activity including that relevant work experience can lead to graduate employment, transferrable skills can be developed in a variety of roles and experiences, and multiple pathways can lead to a particular type of role. The learning activity also positively influenced students' perceived employability with individuals reporting reduced anxiety and increased confidence about achieving their career goals. This paper provides evidence of the value of embedding career development activities and self-reflection in curriculum to enhance employability skills. We recommend the use of alumni career stories for raising awareness of career possibilities and strategies utilised by more experienced peers to bridge the gap between study and professional employment.

Keywords
graduate employability; careers; career exploration; alumni; skills

Introduction

Graduate employability is core business for higher education. In a regulatory environment in which graduate employment rates are linked to institutional funding (Jackson, 2024), and the Australian government's recently released Australian Universities Accord (Department of Education, 2024) calls for much greater access to higher education for equity groups, the need for universal employability education has never been clearer. Research has revealed links between participation in employability

curriculum such as work-integrated learning (WIL) and perceptions of employability (Jackson & Bridgstock, 2021; Jackson & Dean, 2023) and, participation in WIL and employment measures (Australian Collaborative Education Network (ACEN), 2023)), providing a compelling case for employability education to be both scalable and embedded in the curriculum to ensure equity of access across a diverse student population.

Graduate employability

Our understanding of graduate employability has expanded from a narrow focus on the achievement of graduate skills and attributes that maximizes the likelihood of a graduate gaining employment (Yorke & Knight, 2004), to include career-management skills for enabling lifelong career development and management (Bridgstock, 2009) and, more recently, the development of pre-professional identity in students prior to graduation (Jackson, 2016).

Graduate attributes, including generic skills and capabilities, such as communication, critical thinking and teamwork, were the initial focus of developing students' employability in higher education (Yorke & Knight, 2004). Decades of work has documented the identification, mapping and embedding of graduate attributes or capabilities across degree programs (Barrie, 2004; Oliver, 2013; Oliver & Jorre de St Jorre, 2018) and graduates who report high levels of generic skill attainment on graduation are 20% more likely to secure full time employment after graduation (Jackson, 2014). Oliver and Jorre de St Jorre (2018) argue that as well as teaching and assessing graduate capabilities, universities should also teach students the ability to identify, self-assess, articulate and evidence their learning of graduate capabilities. However, the development of generic skills on their own does not adequately prepare graduates for the workforce and the development of career management skills is also critical (Bridgstock 2009). Career management skills which include both self-management skills (an individual's perception and understanding of their values, abilities, interests and goals) and career building skills (ability to find and use career and job market information, find and secure employment and use those employment opportunities to advance their career) should start being developed early in university programs and should be compulsory and assessed as part of the coursework (Bridgstock, 2009). Few students opt in to extra-curricular programs to develop employability skills even though the majority know that it would be beneficial (Jorre de St Jorre & Oliver, 2018). Jackson & Wilton (2017) described the need for students to develop their skill of perceived employability which requires both being able to articulate achievement of graduate capabilities as well as strong skills in effective career management. A student's confidence in their personal capability is one of the key elements of a positive graduate identity, and a positive graduate identity is linked to a greater likelihood of full-time employment in Australian students (Jackson, 2014).

Professional identity development is also fundamental to a graduate's employability and a critical element of successful transition to the workforce (Jackson, 2016). Good alignment of a graduates' professional identity with employers' needs and the labour market is associated with greater success for graduates entering the labour market (Tomlinson & Jackson, 2021). Professional identity draws on capitals or resources which facilitate and enable a graduate to bridge the divide between university and work (Tomlinson, 2017). Human capital includes the foundational knowledge and skills acquired through formal education or other experiences, and social capital includes social ties and networks that help mobilise a graduate's human capital and connects individuals to the opportunities available in the employment market (Tomlinson, 2017). An individual's perceived employability and the approach taken by that individual to seeking employment are influenced by their human capital and social capital, as well as individual behaviours and attributes (Clarke, 2018).

A third capital, cultural capital, relates to culturally relevant knowledge, behaviours and attitudes desired by a profession or organisation (Tomlinson 2017). Employers seek graduates with motivational sets and dispositions aligned with their organisations so developing students' cultural capital as part

of their pre-professional identity is crucial for successful transition to the graduate workforce (Tomlinson & Jackson 2021).

Role models play a critical role in the formation of pre-professional identity (Jackson, 2016) because they are able to model successful career exploration and decision making that has resulted in graduate employment (Brown et al., 2003). As a form of social capital, alumni networks make available information and insights about role types and job opportunities, including what jobs exist, where they reside and who the main gatekeepers of that employment are (Tomlinson, 2017). Aligning with the maxim 'You can't be what you can't see', having role models that are similar in background and demography to the students exploring possible careers in their areas of interest is particularly important (Brown et al., 2003). Providing access to the stories of alumni may also be important for students from non-traditional backgrounds or other individuals with less developed social capital, as utilising alumni as role models provides ready access for students to career pathway options forged by individuals who came from similar backgrounds and studied and graduated from equivalent courses at the same university. While curriculum-based career reflection has demonstrated clear benefits, it typically centres on students evaluating their own experiences rather than examining the career trajectories and insights of alumni.

Employability in curriculum

Embedding career development learning into the curriculum not only supports the development of employability but also can facilitate improved student engagement (Jackson & Edgar, 2019; Tomlinson & Jackson, 2021). A student's career interest can change during their course of study and course content is the primary influence on that change. Quinlan and Renninger (2022) found that student interest in the scientific content of their course strengthened their career decidedness, and recommended contextualising career development learning within the disciplinary content. Students also report that course curriculum is more influential than the co-curricular careers service on clarifying their career interests (Quinlan & Corbin, 2023). Including career development learning early in a course of study provides an opportunity for students to learn about a range of career options and supports development of realistic career identities (Bridgstock et al., 2019), something that is particularly important in generalist courses which lead to a wide range of potential occupations. Early access to career development learning also enables students to better target workplace and other experience building activities throughout their course, better preparing them for graduate employment (Jackson & Wilton, 2017). Previous research has focused on work-integrated learning, particularly internships, and co-curricular programs, but has largely overlooked the specific learning activities and assessments embedded within dedicated career-focused curriculum (Scandurra et al., 2024).

One of the most researched forms of employability curriculum is work-integrated learning (WIL), which includes a wide range of activities with various levels of authenticity and proximity to employers and the workplace (Kaider et al., 2017). WIL has been linked to improved employment outcomes for graduates (ACEN, 2023), improved perceptions of employability skill development (Jackson & Bridgstock, 2021; Jackson & Dean, 2023) and enhanced perceptions of overall preparedness for employment in graduates (Jackson & Dean, 2023). Different types of WIL (workplace, non-workplace, global) have been linked to development of different skill sets and attributes providing support for the value of including a variety of WIL experiences in curriculum to enhance overall graduate employability (Jackson & Bridgstock, 2021; Jackson & Dean, 2023). Extra-curricular activities such as paid work and volunteering are also perceived by students as being important for enhancing employability (Jackson & Bridgstock, 2021; Muldoon, 2009), and there is evidence that paid work during the final year of study improves full time employment rates on graduation (Jackson & Collings, 2018). Participation in paid work and volunteering during study are also linked to student perceptions of career-readiness, with reported increases in development of generic skills such as communication as well as employability and career planning skills (Coates, 2015; Muldoon, 2009).

WIL provides a supported experience in the workplace which allows students to develop some of the capitals which are essential for professional identity development (Tomlinson & Jackson, 2021). Human capital increases through application of skills and acknowledge to the workplace, and social capital is enhanced through the forging of links with professional networks (Tomlinson & Jackson, 2021). In addition, cultural capital is developed through immersing the student in the professional workplace and its culture (Tomlinson & Jackson, 2021). The evidence is clear that embedding activities where students have the opportunity to develop employability skills and pre-professional identity as part of a course of study better prepares graduates for transition to employment.

Despite the obvious benefits, participation rates in most employability-building activities remains low (Jackson et al., 2024), and participation is not consistent across the student body with students who may benefit most often opting out. Studies have shown that students from equity groups are less likely to access career services (Andrewartha & Harvey, 2017). Equity group students are also less likely to engage in elective WIL (ACEN, 2023), possibly due to biases in selection such as grade cut-offs or hidden profiling (Jackson, 2024), or to a lack of flexibility in the timing and structure of placements (Peach et al., 2016). Other studies have found that first-in-family students are less likely to participate in internships (Jackson & Bridgstock, 2021), and that students with a disability face uncertainties over how their disability will be accepted in the workplace, and the extent to which accommodations will be provided (Dollinger et al., 2023). Low SES students, students with a disability, and Indigenous students have all been shown to participate less in elective work-based WIL; likewise, participation for mature age students and regional students is lower, and this gap appears to be widening (ACEN, 2023). International students also participate less in elective work-based WIL (ACEN, 2023; Jackson, 2024), and face challenges stemming from restrictive visa conditions, the failure of workplaces to offer culturally inclusive experiences, and unfamiliarity with local workplace cultures (Vu et al., 2022). Students from lower socio-economic groups reported lower perceived employability (Jackson & Dean, 2023), indicating that less frequent participation may be having a negative impact on the employability of those individuals. Jackson (2024) highlights that with further development, WIL has the potential to be a vehicle for social transformation by reducing, rather than perpetuating, inequalities. Including employability and WIL activities in core curriculum will result in students having equitable access to learning that supports development of their employability.

Graduate career pathways activity

To address the need to embed employability into the curriculum at a large campus-based suburban university in Australia, an introductory employability subject was designed and included as compulsory in multiple exploratory courses of study in the discipline areas of science and health. Students completed the subject *Career options and professional identity* in the first semester of their second year of a three-year Bachelor level degree. Students were from a diverse range of majors of study including computer science, mathematics, physics, chemistry, biology, biomedicine, health sciences. One of the core learning activities was the graduate career pathway activity which leverages off the career paths of alumni as role models for career exploration (Brown et al., 2003). In this activity, students analysed career paths of graduates from their university and discussed and synthesised learning from that analysis, focussing on any patterns identified and insights gained about obtaining employment after graduation. The learning resources developed to support the activity were infographics displaying the career pathways of graduates as a time series of roles including paid work, volunteer roles, student placements or internships, and any further training undergone (see Appendix 1 for an example). The alumni data were collated from a public professional networking platform and deidentified prior to development of the student resource. Students worked in small teams and each student was required to analyse two individual graduates from the career pathways resources provided. Prompts provided for the analysis included considering the timeline of career events for an individual graduate, what paid and unpaid (volunteer) work the graduate did while at university and how might these and any subsequent roles have contributed to the development of skills and

expertise, what further study or training did the graduate undertake that may have further increased their employability, and what insights were gained about strategies for gaining employment in STEM and health. The activity was completed over two consecutive weeks during workshops, with teams presenting their findings in a group presentation in the second week. After the workshop series, students were required to complete a structured reflection on the graduate pathway learning activity and this reflection comprised part of a more extensive reflective portfolio which was the major assessment item for the subject.

Methods

In this study we investigated what students learned from the graduate career pathway activity and the extent to which the activity influenced students' perceptions of their employability. Students' reflections of the graduate pathway learning activity comprised the data for this investigation. Reflections were structured around the Describe, Interpret, Evaluate and Plan (DIEP) model which is based on the principles for structured reflection outlined in Boud et al., (1985), and was used to give students clear direction on how to step through a process of critical reflection. Students' reflections were assessed against the criteria listed in Appendix 2. The 'Interpret' and 'Evaluate' sections were the focus of qualitative data analysis in this study. Reflections were coded by two of the three authors following a thematic analysis approach (Braun & Clarke, 2006). A sample of 50 reflections was first coded independently by two individuals, resulting in an inter-rater reliability (IRR) of only 43%. The coders then met to discuss and agree upon the coding of this sample and clarify the coding book. Subsequently a further 50 reflections were coded independently by both authors, leading to an IRR of 70%, and Cohen's Kappa calculated for each code ranging from 0.59 (moderate agreement) to 0.91 (almost perfect agreement), which was considered acceptable (Cohen, 1960; Landis & Koch, 1977). The coding of the remaining reflections was shared between the two authors. A total sample of 220 reflections were analysed (n=110 from each of the 2022 and 2023 cohorts (total enrolments were 429 and 396 respectively)). Microsoft Excel and NVivo (version 22) were used for all data analysis. This project was approved by the University's Human Ethics Committee HEC19044.

Results

Transferable skills

The most frequently mentioned theme in the student reflections was 'transferable skills', with approximately 60% of students in the sample reflecting that transferable skills can be developed in a variety of roles and experiences. Students reflected that well developed transferable skills were important for gaining employment and both paid and unpaid work provides an opportunity to develop those transferable skills. Some reflections revealed a raised awareness that no experience was wasted, and any paid or unpaid work helps build transferrable skills and employability:

> *I knew before coming into this workshop that having previous work experience is always advantageous. I didn't realise however, how many soft skills you gain in earlier employment, such as communication, teamwork and time management, that really help you going into your next job and role.* (Student 14, 2022)

Some students also wrote about a realisation that the paid or unpaid work they were currently doing or had done in the past was already developing these skills:

> *Learning about the importance and portability of enterprise skills and seeing real life examples of this was really beneficial to me as this allowed me to see that I have already developed more relevant/transferable skills than I have previously recognised.* (Student 13, 2023)

Gaining experience

‘Gaining experience’ was the second most frequently mentioned theme, with approximately 40% of students reflecting that having experience in a workplace or community organisation was important for securing employment in their field of interest. Students observed that some graduates secured paid work in an organisation where they had done volunteering or a work-based learning placement, and others highlighted that gaining experience while at university was just as or more important for graduate employment than achieving high grades: ‘Comparing the career paths of the graduates helped me realise that it is important to find volunteer and/or work experience while at university, as it helped the career graduates find employment within a related industry faster’ (Student 27, 2023); and ‘I have learnt about how experience can often have more weight to gaining employment than just good grades’ (Student 70, 2022).

> *Previously I knew doing placement would be very beneficial, but I don't think I realised how important it is to build both soft skills and career-specific skills, and for myself particularly, to gain experience in a range of fields to find my interests. Many graduates later got paid work at the same institution they volunteered at or did a placement at which I did not realise was so common*. (Student 34, 2023)

Related to this, approximately 50% of students specifically mentioned that volunteering was a useful way to get relevant work experience and develop career-ready skills. For example, one student commented:

> *I also learned that volunteering work also increases the chances of employability. Before this workshop I never considered doing a volunteering role as it felt like a waste of time and energy. But now I understand that volunteering work helps us build transferable skills which can be applied in future career roles. (Student 66, 2022)*

Career options and pathways

Approximately 30% students reflected that there was a wide variety of career options available to them and through analysing the graduate career pathways, approximately 25% of students observed multiple individual journeys or pathways to the same type of role. In their reflections, students expressed emotions such as fear and worry about future employment opportunities and a sense of relief and inspiration when they observed the breadth of options and pathways available: ‘It showed me that there are many routes both to and after a STEM degree to get where you ultimately want to be and perhaps I can be less worried about future employment opportunities’ (Student 7, 2023).

> *This workshop was of great value to me … because I know now that there are so many jobs out there and so many different career pathways that are open to me. Before this workshop I was scared that there was* [sic] *only a few jobs and that it would be really hard to find a job or pathway that I wanted to go down. This workshop taught me not only that there a lot of jobs out there and for different positions and areas of science that I am interested in but that I am not restricted to any one pathway.* (Student 8, 2022)

One student expressed a sense of relief about seeing examples of flexible career paths that change direction as graduates likely adapt to changes in environment, opportunity and interests, linking this to their own preference for variety and experimentation:

> *I felt relieved/inspired upon seeing many real examples of how ‘squiggly’ career pathways can actually be, as I previously thought this was uncommon, which worried me as I am someone who likes to experiment in many different areas/disciplines and hence cannot see myself having a stepwise career progression*. (Student 13, 2023)

Confidence and perceived employability

Approximately 35% of students reflected that they felt more confident about their graduate employment prospects as a result of participating in this learning activity. Some individuals wrote

about not needing to feel pressured to rush decision making about their next career step as careers can flex and change over time and others expressed confidence in knowing the strategies to put in place to proactively enhance their employability. Comments included:

> *Having learned this I feel more confident going forward as it means that I don't necessarily have to decide on what I want to do straight after graduating. I can go in one direction and then decide that's not for me and go down a different pathway*. (Student 41, 2022)

> *This learning adds to what I already knew about the importance of being proactive and strategic when preparing for a career in STEM. I feel more confident and better equipped to take on the challenges of securing a job in my chosen field*. (Student 49, 2023)

Some students also wrote about feeling more confident about their own skillset and experience, that it counts towards their overall employability, and will be valued by future employers:

> *The main value to me in this exercise was an increase in confidence. As a mature student without a strong maths or science background, I've often wondered how I will compete with younger, more technically capable students. This experience was a good reminder that we all have different strengths, skills and attributes and the generic skills I have honed over the past 20 years such as highly developed communication skills and the ability to work as part of a diverse team are still considered valuable in STEM careers.* (Student 30, 2022)

Some students reported a strong sense of agency about their careers and articulated how inspiring it was to see the career paths of graduates who studied their degree at their own university and then successfully transitioned into the STEM workforce. One such student commented:

> *Honestly, this experience was transformative for me. Initially, I went into the experience intimidated by the prospect of seeing other people's career paths, as I am still unsure about my own career path. I thought that seeing others' success would make me fearful. And, to be honest, it did at first. However, as I read about the career paths of people in my field, it gave me hope. I realised that the power to shape my career path was in my own hands, and that I have resources at my disposal to jump-start my chosen path. Whether it's through volunteering or pursuing further education, every little bit helps. The STEM lessons I learned from other graduates have influenced the way I am preparing for my own career in STEM, primarily through volunteer work. But, it has also instilled a sense of resilience in me. Seeing that these real-world individuals were once in my shoes, and have now moved on to the real world with the tools and applications that are shared with me, has been truly inspiring.* (Student 154, 2023)

Discussion

In summary, students reported multiple learnings from the graduate pathway activity: relevant work experience (placement, volunteering or paid work) helps secure graduate employment; transferrable skills can be developed in a variety of roles and experiences; and there are multiple paths to achieving a particular type of role and many different career options for graduates. The learning activity also positively influenced students' self-perceived employability with individuals reporting reduced anxiety about achieving a career in STEM or health, increased confidence about being on the right track, and gaining greater clarity concerning strategies for increasing employability. Finally, the value of analysing the career paths of graduates from their own degree and university was highlighted as being very beneficial for gaining insights into real-world graduate pathways that appear accessible and achievable.

Graduate pathways demonstrate the value of gaining experience to enhance employability

In their reflections, students identified that graduates had engaged with activities and experiences that developed skills and progressively built employability over time. In the graduate pathways

learning activity, students saw examples of paid and unpaid work, fellowships, work placements and internships, and volunteering which represented a mix of curricular, co-curricular and extra-curricular employability-building activities. Through their analysis students identified the connections between these activities and graduate employment, and therefore the value of participation in these activities for securing professional employment and building careers. The longitudinal nature of the graduate pathways demonstrated that developing employability was cumulative, and in doing so, this learning activity introduced students to the idea of a career as a process of lifelong learning (Bridgstock, 2009).

The graduate pathways also highlighted to students that extra-curricular activities, alongside a course of study, were important for broadening experience and skillsets. This finding aligns with other research which found that a range of embedded, co-curricular and extra-curricular activities were considered by graduates as useful for gaining experience and skill development (Jackson & Bridgstock, 2021), with external paid work and internships having the highest participation rates of all employability-building activities (Jackson et al., 2024). Research shows that recruiters value extracurricular activities on a CV as they provide evidence of skill development and real-world experience (Clark et al., 2015).

Graduate pathway analysis enables reflection on transferrable skill development

Through their analysis of graduate pathways to professional employment, students identified that the development of skills and broadening of skillsets could be achieved from a series of roles and activities related to the future profession. Some students reflected that they were already developing transferrable skills in external paid work roles and other extra-curricular activities and expressed greater confidence in their employability as a result of this new understanding. Employability-related activities which include a requirement or opportunity for reflection enable students to make links between the activities and self-perceived employability (Jackson & Dean, 2023). By providing an opportunity to reflect on their extra-curricular activities, the graduate pathways activity enabled students to capitalise on their experience of paid work and gain a better understanding of the value of it for building their employability.

The strong focus on transferrable skills in students' written reflections mirrors the focus in higher education curriculum on the teaching and assessment of graduate skills and capabilities (Oliver & Jorre de St Jorre, 2018). Academic staff emphasise skills and make them explicit in learning resources through intended learning outcomes and assessment tasks, so they are front of mind for students. Skills are also highlighted by employers in job advertisements and key selection criteria, thus providing signposts to students that skills are required, utilised and valued in the workforce. Transferrable skills form part of the human capital dimension of professional identity (Tomlinson, 2017) and even though human capital is foundational, it does not in itself guarantee graduate employment (Tomlinson & Jackson, 2021). Social capital enriches and contextualises the knowledge and skills through social interactions and networks aligned with the field of employment (Tomlinson & Jackson, 2021). The graduate pathway activity not only facilitated student learning about how transferrable skills could be developed through a series of roles and experiences, but also contextualised the skill development in the students' profession of interest thus providing an opportunity for social capital development and enhanced career insight and awareness (Tomlinson & Jackson, 2021).

Graduate pathways raise awareness of available career options

Analysing career pathways of graduates helped students see the types of roles and organisations that employed graduates with their qualifications and provided career insights into the job market. Students identified from the graduate pathways resources that a wide range of roles were available, and individual graduates took different pathways to the same or similar roles, reinforcing that no two career paths are identical. This finding aligns with research which analysed 2.7 million job advertisements in Australia and revealed seven job clusters in the Australian economy which utilised similar knowledge and skillsets, demonstrating that skills were more portable than previously thought

(Foundation for Young Australians, 2017). The research concluded that if an individual trains or is educated for one particular job then they will have the skills for 13 other jobs on average. When students completed their analysis of the pathways of graduates from their own degrees they saw tangible evidence of these ideas: graduates taking different paths to the same job, graduates from the same course or major ending up in a variety of different roles and industries, and individuals who worked or volunteered in a time sequence of roles having gathered and applied transferrable and technical skills to their subsequent roles. This notion also aligns with the broader idea of careers being a journey of life-long learning (Bridgstock, 2009) where every experience or period of education/training contributes to building an individual's employability.

These career insights are particularly important for students in generalist degrees with a wide range of potential occupations. Lock and Kelly (2020) found that students in specialist degree programs were better informed about career options for graduates of their degree than students in generalist degrees, and also had the highest confidence concerning the career direction they wanted to pursue (Lock & Kelly, 2020). A greater sense of clarity about the career options available can also have the added benefit of enhancing both student achievement and engagement during studies (Bridgstock, 2009).

In their reflections, students reported more positive emotions (increased motivation, reduced anxiety, greater confidence) as a result of gaining clarity about their career options and the pathways to reaching their career goals. This aligns with other studies that have found that completion of a career research module increases motivation for careers/career planning (Julien et al., 2023) and confidence in career decisions amongst students (Miller et al., 2018). Hope and having a positive outlook about career prospects are known to trigger career exploration in university students (Porfeli et al., 2012; Hirschi et al., 2015), and positive psychological states (reduced stress/anxiety) and motivation positively influence ongoing exploration (Jiang et al., 2019). Hence engaging in a graduate career pathways activity early in a course of study may stimulate further exploration and stronger engagement with other employability-building activities, resulting in further development of an individual's career and professional identity (Praskova et al., 2015). Jackson and Wilton (2017) found a dedicated career self-management unit likely contributed to stronger career choice status, which they argue needs to be developed early in a student's study experience so that they can better target experience building and take advantage of employer-offered opportunities such as placements through their degrees.

Alumni as role models for demonstrating that graduate roles and careers are achievable

The value of learning from alumni emerged as an important aspect of the graduate pathways activity. Alumni have the capacity to role model successful career exploration and decision making, and visibility of alumni career pathways can play an important role in development of a student's pre-professional identity (Jackson, 2016). Analysing careers of alumni can also provide insights into role types and job opportunities including the organisations that employ those roles (Tomlinson, 2017). The finding of Johnson and Leo (2020) that comparison of the self with apparently more successful others on an online professional networking platform could lead to loss of self-efficacy, rather than the intended modelling, was not supported by our study. Alumni from a student's own university and own degree can provide the student with real-world graduate pathways that appear accessible and achievable. In this study, students reported feeling inspired and motivated to see someone who was once in their shoes succeeding in the workforce. Having role models that are similar in background and demography is particularly important for students from non-traditional backgrounds or equity groups that might be lacking readily available role models for their profession of interest within family or community networks. These results provide strong support for embedding career exploration activities into curriculum so that all students can benefit.

Conclusion

This study contributes in two ways to our understanding of employability skills development. Firstly, it provides evidence of the value to students of embedding career exploration activities into curriculum as it provides a mechanism for gaining career insights from alumni about roles and organisations employing graduates in their area of interest. These types of career exploration activities are scalable for large student cohorts with minimal additional resourcing and can be utilised for a wide range of degree programs and professions. Secondly, this study demonstrates the value of reflection for building students' understanding of their potential careers, perceptions of employability, and real-world examples of the strategies others have taken to progressively build their employability as they transition from study to employment and between different roles. Other authors have highlighted the importance of including the requirement for reflection within curriculum to make the most of the learnings from employability-related activities (Jackson & Bridgstock, 2021; Jackson & Dean, 2023), as the opportunity to reflect encourages students to make links between the activities and their perceptions of employability (Jackson & Dean, 2023) as well as to interrogate and reach a deeper understanding of their interests, knowledge, skills and experience, which they can subsequently articulate to potential employers (Oliver & Jorre de St Jorre, 2018).

This study investigated the influence of a graduate pathway learning activity and associated assessment tasks on student learning and perceived employability. The findings and their broader application are limited by the single-university scope of the research, however the data were collected across multiple years, and the students were enrolled in multiple degrees in the STEM and health disciplines with a very broad range of future occupations. The links between analysing alumni pathways and development of employability and professional identity in students could be explored further through a more in-depth study of the value of utilising alumni stories for raising awareness of career pathway possibilities and the strategies utilised by more experienced peers to bridge the gap between study and professional employment.

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Conflict of interest

The authors have no conflicts to disclose.

Declaration on the use of AI

No use of Artificial Intelligence was made at any point in this submission.

CReDIT authorship contribution statement

CT and FB conceptualised the study. CT and FB collected and analysed data. All authors contributed to the drafting of the manuscript. All authors also critically reviewed the manuscript and approved the final version.

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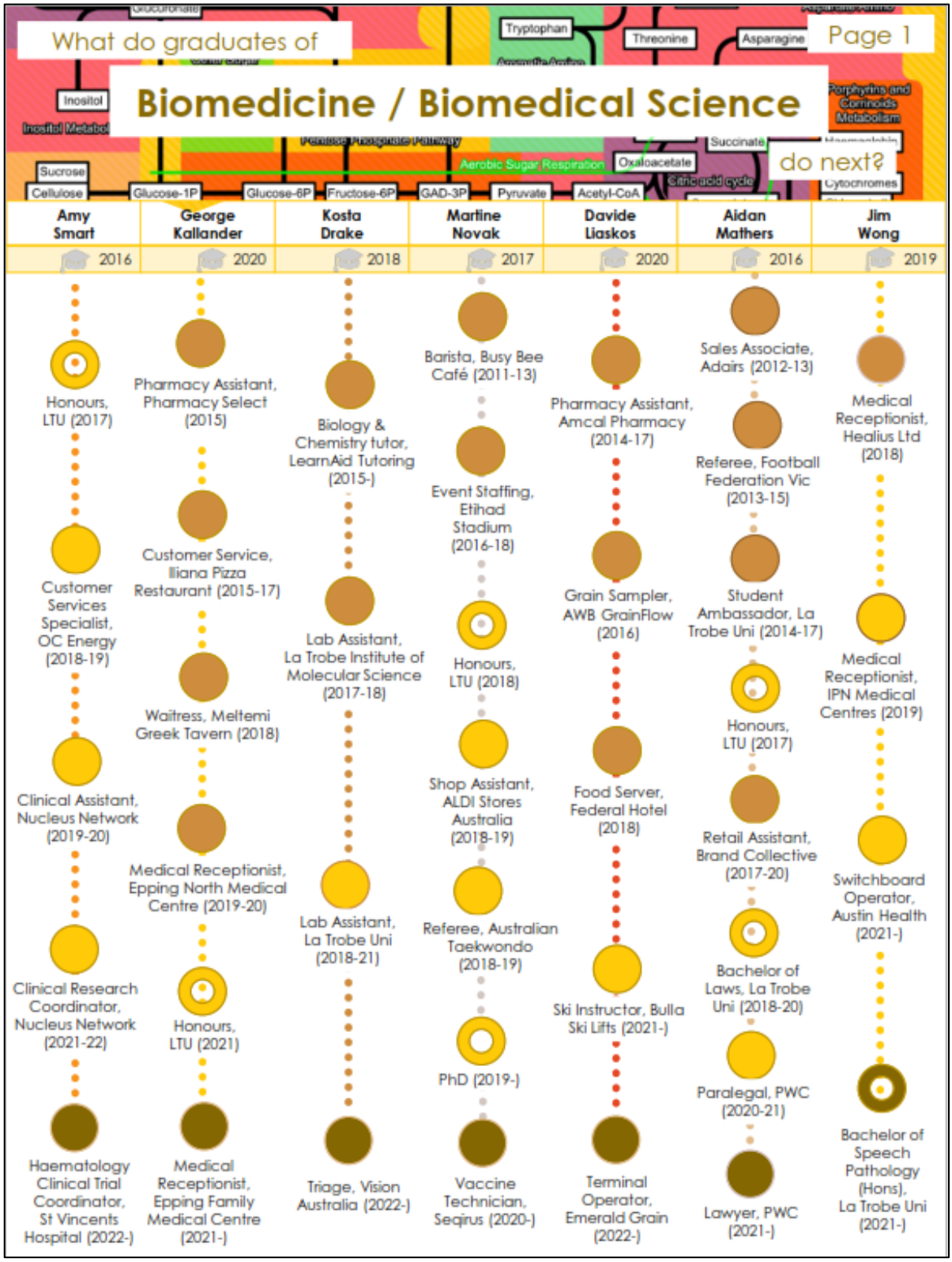
Appendix 1

Example learning resource displaying the career pathways of deidentified graduates as a time series of roles and further training.



Appendix 2

Assessment criteria and satisfactory standard for the Graduate pathway reflection.

Criteria	Satisfactory standard
Description	Details of activity were provided and described: title and content, date/time
Interpretation	A personal interpretation of the content of the activity and connection/s with prior learning/experience, which included a description of your personal response and explanation, with some justification, of how and why you responded in that way
Evaluation of personal learning	Your response to the content of the activity was evaluated by analysing how valuable and useful this experience was for you, explaining why you might think this.
Plan for application of learning	Conclusions were drawn by stating the take-home message/s of this activity. If relevant, steps were identified to address any gaps in knowledge, experience or expertise
Written expression	Writing was clear and concise. There was a logical flow of ideas. There may have been minor sentence structure, punctuation and spelling errors