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A career research module promotes career exploration and understanding of the labour market and transferable skills

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Abstract

Students, the public, and government expect university graduates to find meaningful employment and contribute to the economic and social prosperity of society. Universities have a responsibility to support students to develop their career management skills. An assessed career research module was embedded into a second-year human physiology subject taken by students in health-science related undergraduate STEM degrees. Students conducted research on the logistics of entering their preferred career, the Australian labour market for this career, and the transferable skills and personal attributes required. They communicated their learnings in a video and completed reflection activities comprised of Likert-scale and open-ended questions. The aims of this study were to determine students': 1) ability to research the logistics of entering their preferred career and the labour market; 2) perceptions of the most important skills and attributes for their preferred career, and development of these; 3) perceptions of module activities and career planning, and perceived career management skills. To address the aims of the study, 265 student videos and reflection activities were analysed. Results indicate that the module supported students in gaining career management skills that were a focus of the curriculum. Most students identified their current university course as the main way they were developing important skills and attributes, with their course, volunteering and further study the main ways they planned to continue skill and attribute development. In conclusion, a career research module is an effective career development tool for students in a range of undergraduate courses.

Keywords
employability, STEM education, health education, career development learning, higher education, career exploration

Introduction

Students, the public, and government expect university graduates to find meaningful employment and to contribute to economic and social prosperity. The world of work has changed significantly due to megatrends including technological innovation, globalisation, and ageing populations (OECD, 2019). The COVID-19 pandemic has caused an economic downturn which will increase the difficulty young people face when transitioning into employment, potentially damaging the perceived relationships between educational success and labour market outcomes and increasing the need for effective career guidance (Mann et al., 2020). Successful navigation of the changing employment landscape will

require well-developed employability skills, including career management skills (Bridgstock, 2009). Students cannot be expected to develop these skills alone – the Australian government's National Priorities and Industry Linkage Fund (2020b) makes clear the expectation that universities will work with industry to produce job ready graduates with transferable skills, discipline-specific skills and knowledge, and the ability to find and maintain work throughout their careers. Becoming a job ready graduate requires awareness of the worlds-of-work so students can align their interests and energies toward appropriate career choices (McIlveen et al., 2011). A scoping review by Murray et al. (2020) of employability initiatives incorporated into undergraduate degree courses found work-based placements were most common and project-based industry collaboration had the highest student and employer satisfaction. These initiatives expose students to real-world scenarios and support professional network development; they are also labour intensive to administer and sustain and it is challenging to source placements for courses that lead to a wide range of jobs. Other successful, and potentially more scalable, initiatives identified were practice-based eLearning, mentoring programs, and building graduate attributes through integrated curriculum, though these lack the tangible connection to the real world provided by placements and industry collaborations.

Evidence shows that many young people are confused about what they need to do to achieve their career goals, particularly students from disadvantaged backgrounds (OECD, 2019). Research has cast doubt on the accuracy of students' expectations and knowledge about their education-employment pathways, even once these pathways have been embarked upon (Hemsley-Brown, 2011). Evidence suggests that many students have a limited or inaccurate conception of their available career choices (Lock & Kelly, 2020). Within non-specialist degrees, many students assume that upon graduation they will be able to be employed in the profession for which the degree is named, sometimes ignorant of the fact that such employment can require postgraduate qualifications with competitive entry (Amiet et al., 2021; Sethi et al., 2018). Lack of clarity surrounding career paths can have a detrimental effect on student engagement and performance, and there is ample evidence to suggest that if students can develop a sense of certainty about their career path, they will be more engaged in their studies and achieve better outcomes (Bridgstock, 2009; Graunke & Woosley, 2005). The diverse range of career paths available to science, technology, engineering, and mathematics (STEM) graduates introduces additional complexity for students, and for academic and professional staff providing career support to students. Frameworks identified to support STEM students to explore, enter, and persist in STEM careers all include the important step of increasing overall knowledge of the STEM career landscape (Rottinghaus et al., 2018).

Accurate understanding of labour market conditions may help students make suitable decisions about their future education but evidence suggests that young people have little understanding of labour market demands (OECD, 2017). Universities can help students to prepare for the difficult labour markets they will face by supporting them to develop, or deploy, greater agency in managing the transition from education to employment (Baluku et al., 2021). Baluku et al. (2021) emphasise the importance of facilitating the growth of students' psychological capital during their university studies, that is, 'the resources that depict a positive mindset that is necessary to succeed in career-related activities' (p. 57). Development of psychological capital has positive short-term impact on engagement in study (and may translate into better grades) as well as long-term benefits in career satisfaction and preparation for the transition to work (Baluku et al., 2021). Career management skills are also fundamental to employability because they allow people to 'proactively navigate the world of work and successfully manage the career building process' (Bridgstock, 2009, p. 35). Bridgstock, a leading employability scholar, argues that career management skills should be explicitly taught, with learning activities incorporated as assessable components of the higher education curricula (Bridgstock, 2009; Bridgstock et al., 2019; Jorre de St Jorre & Oliver, 2018; Oliver & Jorre de St Jorre, 2018). Career management requires career building and self-management skills. Career building skills include the ability to find and use information about labour markets, locate, and apply for work and learning opportunities, and create professional relationships (Bridgstock, 2009). Career self-management has been found to be a more important predictor of employment status and quality than perceptions of knowledge and skills, and confidence in job search processes (Brown et al., 2021; Rothwell et al., 2008;

Rothwell et al., 2009). It is therefore not surprising that employability experts argue that we need to teach and assess the ability of students to recognise, self-assess, communicate, and evidence their attainment of graduate attributes important to their career goals (Jorre de St Jorre & Oliver, 2018). Students' lack of awareness of skills developed during study, or an inability to articulate these skills (a so-called 'awareness gap'), may contribute to the skills gap perceived by some employers who believe that university graduates are not ready for work (Markovitz, 2017).

Engagement with one's career development process was found to be essential for students to feel satisfied with their career progress and self-determinedly prepare for their career life beyond school context (Baluku et al., 2021). Consistent with the recommendations of employability scholars, meta-analyses found that various career-related outcome measures were higher for those who had received career intervention than those who had not (Ryan, 1999; Whiston et al., 2017). Completion of a career development subject during a degree resulted in students becoming more certain about an occupational choice, satisfied with their current occupational choice, confident about the process of making a career choice (Miller et al., 2018), and also graduating with more credits and higher cumulative GPAs (Hansen et al., 2017). Brown et al. (2003) undertook a meta-analysis of the literature on interventions designed to support students in making career choices and found career development activities that introduced students to sources of occupational information and provided in-class time to use these resources had positive effects on career choice outcomes. In these studies, students could gather occupational information in class through visits to career libraries, guest speakers, or computer modules.

Educators have reported positive outcomes of teaching career management skills in course-wide STEM curricula that improve students' awareness of their career opportunities and prepares them for entering their future careers, for medical (Olive et al., 2016), biomedical (Choate et al., 2019), psychology (Prehar & Ignelzi, 2012), and health science (Brown et al., 2019) students. These students have diverse careers available to them and reported lack of awareness of their options. Prehar and Ignelzi (2012) describe an interactive workshop delivered to introduce psychology undergraduate students to the four stages of career development: self-assessment, career exploration, gaining experience, and implementing a plan. Students found that learning about the range of career options available and the importance of gaining experience (and how to do so) was most valuable. Students reported planning to gain professional experience and meet with a career adviser in response to the session. Medical students were satisfied with the career exploration subject in which they engaged in large-group discussions, alumni and residency program director panels, and individual career counselling, to support decision making relating to the specialties they intended to pursue as residents (Olive et al., 2016). Biomedical students who completed a professional development program had enhanced self-ratings of their career awareness and knowledge and felt the program engaged them with their career development and made them aware of diverse career options (Choate et al., 2019). Biomedical student engagement with the institution's career services increased, and their awareness of potential careers broadened. Brown et al. (2019) describe an assessed career exploration activity in which third-year health science students investigated the logistics of entering their preferred career and delivered an oral presentation. Although most students reported that the activity helped with their career planning, it was lacking exploration of the industry of interest and a focus on development of the transferable skills important for the students' preferred career. The authors of the study suggested that while the career intervention activity was worthwhile, third-year was too late for the activity, and it should instead be introduced earlier in the degree (Brown et al., 2019).

The assessed nature of the biomedical and medical programs resulted in high levels of student engagement (89%) (Choate et al., 2019) and 100% (Olive et al., 2016) and students appreciated that the modules were assessed (Choate et al., 2019). The medical program described by Olive et al. (2016) was introduced to replace an optional career planning program that had low student participation rates and saw students report overall dissatisfaction with career planning support. This is consistent with others who have observed low levels of engagement with optional or extra-curricular employability initiatives (e.g., Jackson & Edgar, 2019), and the recommendation from employability

experts that teaching career management skills should be incorporated as assessable components of the curricula (Bridgstock, 2009; Bridgstock et al., 2019; Jorre de St Jorre & Oliver, 2018).

In the present study, we build upon the work of previously published research. We developed, implemented, and evaluated an assessed employability module embedded into a physiology core subject taught to second year students enrolled in health-science related courses. The module learning activities encouraged students to develop their career management skills by investigating the logistics of entering their chosen career, determining the transferable skills and personal attributes that would be most important, and how they had, and planned to, develop these. The objectives of the study were to determine:

1. Students' ability to research the logistics of entering their preferred career and the labour market.
2. The transferable skills and personal attributes students perceived as most important for their preferred career, how students had been developing them, and how they planned to further develop these.
3. Students' perceptions of the module activities and career planning, and perceived career management skills.

Career research module

The career research module was embedded into a first-semester second-year human physiology core subject delivered over 12 weeks and contributed 10% of the final grade. The module comprised two components: a video presentation worth 60% of the module, and reflection activities completed in a PebblePad ePortfolio worth 40% of the module (Figure 1). A link to the student guide, which includes the marking rubric, can be found in Appendix 1.

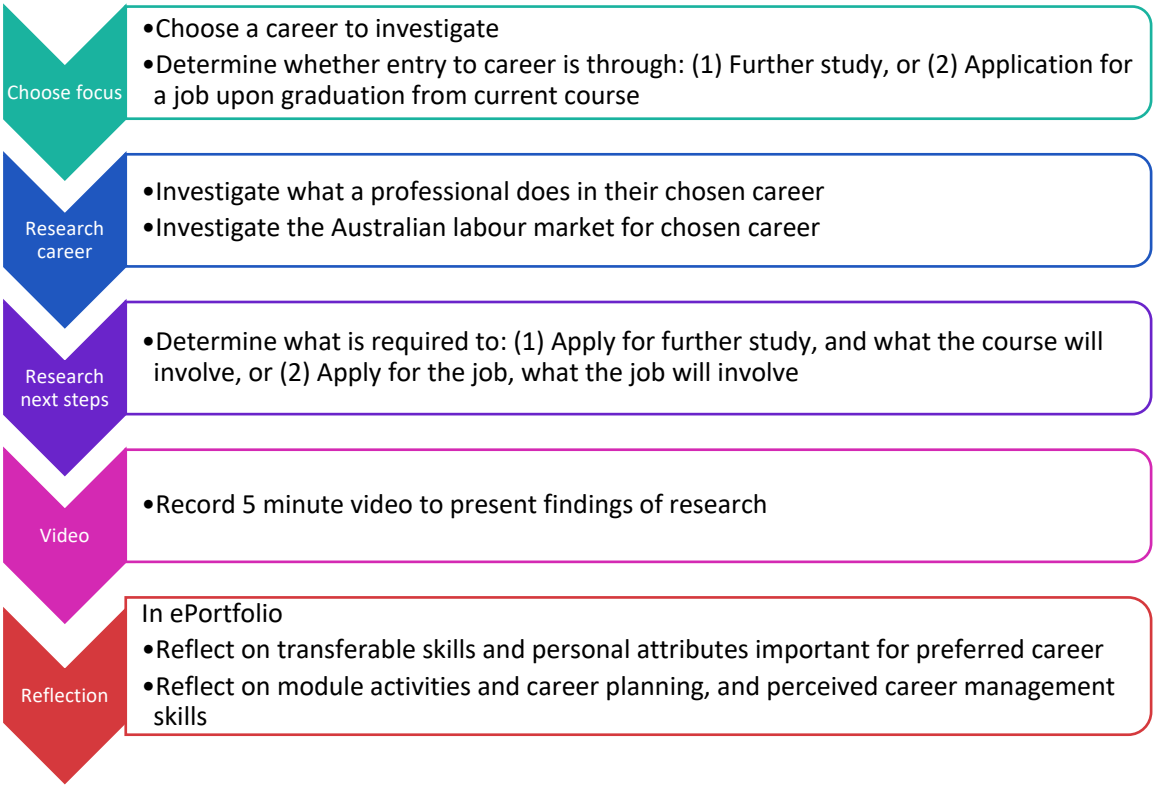

Figure 1: Chronological Overview of Student Activities in the Module

Video

Students were required to research the logistics of entering their preferred career and present their findings in a 5-minute narrated PowerPoint video. Students could present on a future course of study or a job they were interested in applying for. The videos included an overview of what a professional does in the chosen career, a summary of the Australian labour market for the profession, and the logistics of applying for the course or job (Table 1). To help students learn about the labour market for their preferred career, they were directed to the Australian Jobs publication (Department of Education, Skills, and Employment, 2020a), a document that provided data about different careers, including median weekly pay, hours worked per week, predicted future employment growth, age and gender profile of work force, the number of people employed in the career, the unemployment rate for that career, and educational attainment of professionals.

Table 1: Logistics Of Applying For A Course Or Job

Applying to study	**Applying for a job**
Course details: Title, level of study, name and location of institution, qualification upon graduation, description of the course (duration, full/part time, limits on places offered, how the course is taught, overview of course content)	**Job details:** Title, where advertised, name and location of company, description of services provided by the company
Entry requirements: education, GPA/WAM, skills, experience	**Skills and experience required:** education, GPA/WAM, skills, experience
Application process: direct to institution or through VTAC (or equivalent), deadlines, additional requirements (e.g., references, interview)	**Application process:** how to submit application, deadlines, additional requirements (e.g., cover letter, resume, references, interview)

Using the rubric (Appendix 1), videos were assessed for the quality of visual aids (15%), language and speech (15%), overview of what a professional does in their chosen career (15%), summary of the Australian labour market for the profession (15%), and the logistics of applying for a course/job (40%).

Reflection activities

After students submitted their videos, they completed two reflection activities in an ePortfolio (PebblePad) – the first was a reflection on the transferable skills and personal attributes important for their preferred career, and the second was a reflection on perceptions of module activities and career planning, and perceived career management skills. The rubric for assessment of the reflection is in the student guide (see Appendix 1).

Reflection on transferable skills and personal attributes important for preferred career

Using the institution's Career Ready Advantage Capability Framework (La Trobe University, 2018; Figure 2) students wrote a 400-word reflection on the transferable skills and personal attributes important for their preferred career. The Career Ready Advantage Capability Framework (2018) was developed in consultation with industry and introduced to highlight for students the skills and attributes sought by employers. The skills and attributes included in the framework (Table 3) are consistent with those most mentioned as being achieved by graduates across Australian higher education providers (Oliver & Jorre de St Jorre, 2018). Students were instructed to provide a comprehensive explanation of the Career Ready transferable skills and personal attributes important for their preferred career (200 words), as well as a comprehensive explanation of how they had been developing the transferable skills and personal attributes through study, work and/or other activities, and future plans for development (200 words). The reflection was worth 38% of the module assessment with equal weighting given to each component of the reflection.

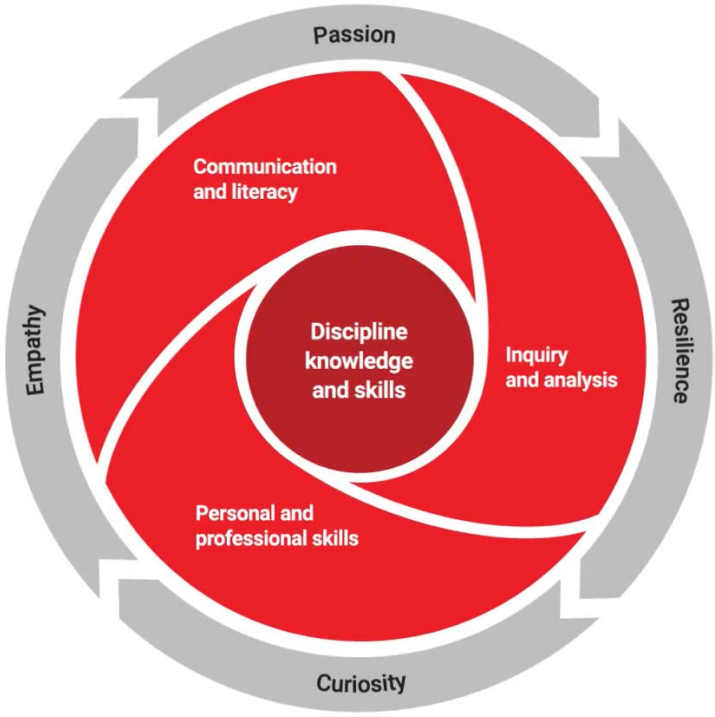

Figure 2: Career Ready Advantage Capability Framework (La Trobe University, 2018)

Table 3: Transferable Skills (and their sub-sets) and Personal Attributes in the Career Ready Advantage Capability Framework (La Trobe University, 2018)

Transferable skills	**Definition**
Communication and Literacy: ▪ Communicating and influencing ▪ Digital literacy ▪ Cultural intelligence and global mindset	Skills to confidently engage, build relationships, and work effectively with diverse groups of people.
Personal and Professional: ▪ Adaptability and self-management ▪ Ethical and social responsibility ▪ Leadership and teamwork	Skills that will support you to be a leader and contribute to a team in an adaptable and ethical way.
Inquiry and Analysis: ▪ Critical thinking and problem solving ▪ Research and evidence-based inquiry ▪ Creativity and innovation	Skills that will enable you to interpret data, and use evidence, and create innovative solutions to challenging situations.
Personal attributes	**Definition**
Passion	Motivated and passionate about your work
Resilience	Able to bounce back after failure and adapt as you face challenges
Curiosity	Curious to learn
Empathy	Able to see things from the perspective of others

Reflection on module activities, students' employability skills and career planning

Students completed a reflection activity comprised of closed-ended (Likert-scale) and open-ended questions that focused on student perceptions of the module activities, and their employability skills and career planning. Closed-ended questions focused on 1) the degree to which students found the module activities helpful for promoting learning about study and career options, what a professional does in a preferred career, the labour market, and transferable skills and personal attributes; and 2) Students' self-rating of their knowledge and employability skills that were a focus of the module. The open-ended questions, focused on career planning, were: 1) What aspects of the My Career module have been most helpful for your career planning? 2) Please suggest any practical changes that you believe could help support your career planning. Students were given full marks (2% of module marks) if they attempted the closed-ended questions.

Methods

Participants

Two hundred sixty-five students participated in the study. All students were enrolled in a first-semester second year human physiology core subject that housed the career module. Students were enrolled in specialist (leads solely to a specific career outcome), non-specialist (broad field of study with considerable choice), and mixed (similar structure to specialist degrees but do not lead to a specific career outcome) degrees (Lock & Kelly, 2020).

The largest cohort was enrolled in the non-specialist Bachelor of Health Sciences (n=114; subsequently referred to as Health Sciences), followed by Bachelor of Biomedicine (n=94; mixed degree; Biomedicine), combined Bachelor of Applied Science/Master of Dietetic Practice (n=25; specialist degree; Dietetics), Bachelor of Human Nutrition (n=23; mixed degree; Human Nutrition), and Bachelor of Science and Bachelor of Biological Science (n=9; non-specialist degrees; Science).

To provide context for the study, the preferred career paths of the participants are presented. Most students wished to pursue careers in Health and Community Service (89.4%), followed by Science (6.0%), multiple jobs (2.6%), various other careers (1.1%), or Education and Training (0.8%). The preferred careers by course cohort are shown in Figure 3. All Dietetics students intended to become dieticians (one after further study), with some reporting interest in specialisations such as sport or research dietetics. Dietician was the most popular career for Human Nutrition students (74%), followed by nutritionist (13%). Medical practitioner was the most popular career for Science (44%) and Biomedicine (53%) students. Most Health Science students were interested in careers in allied health (74% total), predominately physiotherapy (40%).

Study design and data analysis

This study used a mixed methods concurrent triangulation design, in which a researcher collects and analyses quantitative (numeric) and qualitative (text) data concurrently, to attempt to confirm, cross-validate or corroborate findings within a single study resulting in well-validated and substantiated findings (Creswell et al., 2003). To address the objectives of the study, student videos and reflection activities were analysed.

Analysis of videos

Using the assessment rubric (Table 2), quantitative analysis was conducted on videos to determine how well students addressed the summary of the Australian labour market for the profession, and the logistics of applying for a course or job.

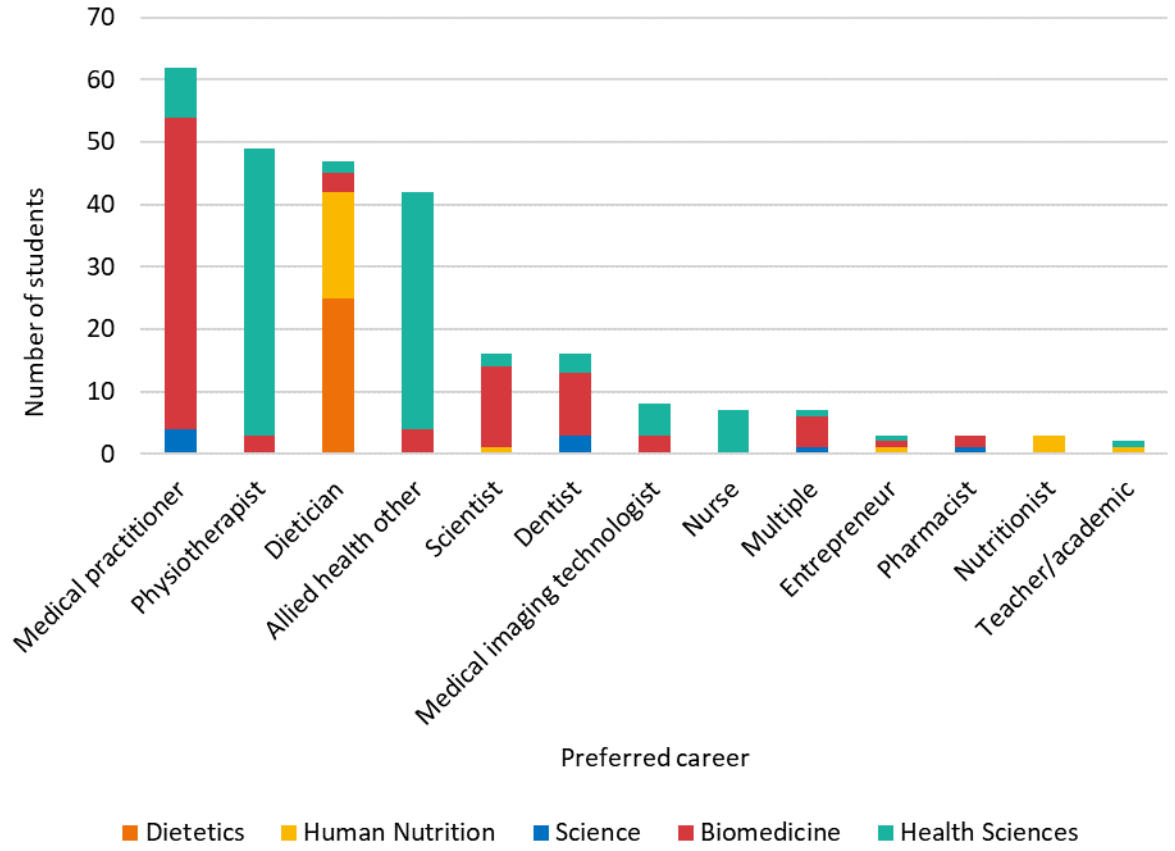

Figure 3: Preferred Careers of Students, Showing Number of Students Categorised by Career Choice and Course Enrolment.

Analysis of students' written reflections on skills and attributes important for preferred career

Qualitative analysis was conducted on students' 400-word reflections. Deductive content analysis (Vaismoradi & Snelgrove, 2019) was used to analyse the transferable skills and personal attributes students reported as most important for their preferred career. Students were asked to choose skills and attributes from the Career Ready Advantage Capability Framework (La Trobe University, 2018); therefore, it was logical to conduct deductive analysis, with the framework categories used to create a structured analysis matrix. Data was coded according to the three transferable skills and their sub-sets, and the four personal attributes (Table 3). Frequency of responses within the categories are presented quantitatively to show how often they were mentioned. Comparison of the transferable skills and personal attributes for the different course cohorts was conducted through one-way analysis of variance tests; the level of statistical significance was set at $p<0.05$. Inductive content analysis (Vaismoradi & Snelgrove, 2019) was used to analyse how students had been developing their transferable skills and personal attributes, and their approaches for further development. Frequency of responses within the themes identified are presented quantitatively to show how often they were mentioned.

Analysis of students' reflections on module activities and career planning, and perceived career management skills

Quantitative and qualitative analysis were conducted on student reflections on module activities and career planning, and perceived career management skills that were a focus of the module.

Quantitative analysis was conducted on the closed-ended questions (5-point Likert-scales) which addressed: 1) student perceptions of the degree of helpfulness (strongly disagree, disagree, neutral, agree, strongly agree) of the module activities for learning about study and employment options, what a professional does in a preferred career, the labour market, and skills and attributes required; and 2)

Students' self-ratings (very poor, poor, fair, good, excellent) of their knowledge and career management skills that were a focus of the module. Descriptive statistical analysis was conducted on the quantitative data to show each component of the Likert-scale as a percentage. Comparison of the ratings for the different course cohorts was conducted through one-way analysis of variance tests; the level of statistical significance was set at $p<0.05$.

Inductive content analysis (Vaismoradi & Snelgrove, 2019) was conducted on the open-ended questions focused on the impact of the module on career planning: 1) What aspects of the My Career module have been most helpful for your career planning?; and 2) Please suggest any practical changes that you believe could help support your career planning. Frequency of responses within the themes identified are presented quantitatively to show how often they were mentioned.

Ethics approval

The study was conducted with approval of the Institution's Human Research Ethics Committee (HEC18127). Students were sent a communication via the Learning Management System inviting them to participate in the study. If students did not wish to participate (did not agree to have their videos and reflections analysed after formal grades for the subject were released) they had the option of quickly and anonymously opting out of the study by sending a brief email to a co-investigator who had no contact with the students. No students opted out of the study.

Results

Analysis of videos

Analysis of videos showed that overall, students did an excellent job of researching and presenting on the logistics of entering their preferred career (M = 93.4%, SD= 11.2) and the labour market (M = 90.3%, SD= 15.4).

Analysis of written reflections on transferable skills and personal attributes important for preferred career

Students (n = 265) were asked to identify the transferable skills and personal attributes most important for their preferred career from the Career Ready Advantage framework. Students could identify multiple skills (Table 4) and multiple approaches (Tables 5 and 6). Shading indicates relative frequency of mention by students, with green indicating most and red indicating least.

Student perceptions of the most important transferable skills and personal attributes for their preferred career

There were no statistically significant differences in responses between course cohorts ($p>0.05$), therefore results are presented for the entire group.

Students most commonly reported Communication and literacy as an important transferable skill for their preferred career. The most commonly identified sub-category was Leadership and teamwork followed by Critical thinking and problem solving. The sub-categories that were least frequently mentioned include Communicating and influencing, Digital literacy, Ethical and social responsibility, Research and evidence based inquiry, and Creation and innovation.

Overall, *empathy* was the personal attribute most reported as important and *curiosity* was least often reported as important (Table 4).

Table 4. Transferable Skills and Personal Attributes Identified as Most Important for Students' Preferred Career (% of students).

TRANSFERABLE SKILLS	% students
Communication & literacy	**79**
- Communicating & influencing	**6**
- Digital literacy	**5**
- Cultural intelligence & global mindset	**29**
Personal & professional	**43**
- Adaptability & self-management	**29**
- Ethical & social responsibility	**20**
- Leadership & teamwork	**51**
Inquiry & analysis	**47**
- Critical thinking & problem solving	**40**
- Research & evidence based inquiry	**20**
- Creation and innovation	**14**
PERSONAL ATTRIBUTES	
Empathy	**49**
Passion	**45**
Resilience	**32**
Curiosity	**25**

Student approaches to developing transferable skills and personal attributes

Students most commonly reported that their current university studies were the main way they were developing transferable skills and personal attributes (Table 5). Paid work unrelated to their future career goals and activities that connected students to others were also commonly identified.

Table 5. Means of Developing the Transferable Skills and Personal Attributes Important for Students' Preferred Careers (% of students).

	% students
Current university studies	**66**
Paid work	**38**
Connecting with people	**29**
Volunteer work	**13**
Paid work in related field	**9**
Academic reading	**7**
Engaging with professionals	**7**
Online research into career	**6**
Professional learning about careers	**5**
Reflective practice	**4**
Practical experience outside of studies (e.g., internship)	**2**

Students' future plans for developing transferable skills and personal attributes

The most commonly reported approaches students planned to use to further develop transferable skills and personal attributes were students' current university studies, volunteer work, further study, internships or work placements, and paid work in a field related to their preferred career (Table 6).

Table 6. Approaches Students Planned to use to Further Develop Their Transferable Skills and Personal Attributes (% of students).

	% students
Current university studies	27
Volunteer work	26
Further study	24
Practical experience outside of studies (e.g., internship)	20
Paid work in related field	17
Connecting with people	16
Engaging with professionals	13
Paid work	12
Academic reading	5
Reflective practice	5
Professional learning about careers	5

Analysis of student reflections on module activities and career planning, and perceived career management skills

There were no significant differences in student ratings for any Likert scale question between course cohorts (p>0.05), therefore results are presented for the entire group. Overall, student perceptions of the module were positive, with most students agreeing (92%) that they had gained knowledge and developed skills that would be useful to them in the future.

Helpfulness of module activities for learning about career options, what a professional does in a preferred career, the labour market and important skills and attributes

Most students (75%) agreed that the module helped them learn more about study/employment options after graduation. The vast majority of students thought the module helped them learn about what a professional does in a preferred career, about the labour market, and about the skills and attributes that employers seek and are important for a preferred career (Figure 4).

Helpfulness of module activities for promoting reflection on development of transferable skills and personal attributes, and formulating a plan for future development

Most students (85%) agreed that the module helped them to reflect on their development of transferable skills and personal attributes important for their preferred career. Similarly, a majority of students (76%) agreed that the module helped them to formulate a plan for future development of the transferable skills and personal attributes important for their preferred career.

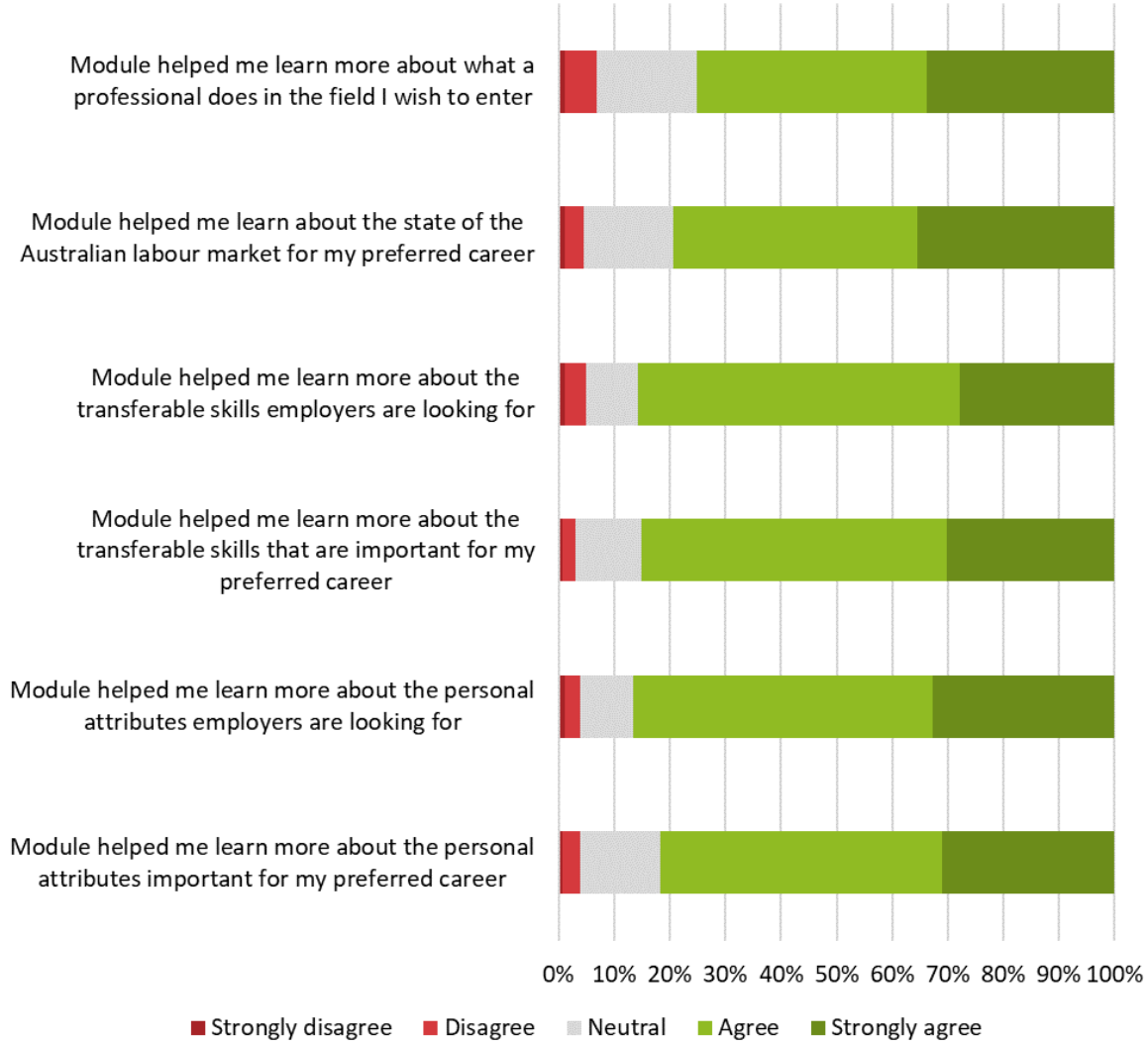

Figure 4: Student Perceptions of the Helpfulness of the Module for Learning About a Profession, the Labour Market, and Important Transferable Skills and Personal Attributes (N=262).

Student perceptions of the module and its impact on career planning

Most helpful aspects of the module for career planning

Two-hundred students provided open-ended responses to the question 'What aspects of the My Career Module have been most helpful for your career planning?' Most comments cited the opportunity to research their preferred career, including what a professional does in the career, opportunities for employment, and the pathways from their degree. Students appreciated learning more about transferable skills and personal attributes – their own and those expected by employers. Finding out the details of the steps required to enter their preferred career and about the labour market was also seen as helpful. Table 7 shows the themes identified and the percentage of students who mentioned the theme. Representative quotes are also provided.

Table 7: Themes Identified from Student Responses (N=200)

Researching preferred career, including options, opportunities, and pathways (41%) • Researching for a specific job I would be interested in pursuing after graduation rather than working towards the generalised idea of a Nutritionist has been helpful in making me think more in-depth about the particular role I want to play in the field of Nutrition, and the kind of people I would like to help specifically. (Nutrition student No. 4) • By showing me the potential study options after my degree, allows me to see that I have more than one option to branch into; providing comfort and relief. (Science student No. 2)
Learning about transferable skills and personal attributes (31%) • Although at first, I thought that the My Career module would do nothing to further my understanding of what my dream profession required, it did. Having to research and think about the transferable skills and personal attributes, allowed to gain further insight into what is needed. (Biomedicine student No. 52)
Learning about logistical details for pursuing preferred career (28%) • Considering in detail what further study I need to undertake and the prerequisites. I have made adjustments to my study plan as a result. (Health Sciences student No. 57) • Researching the application process in detail, including deadlines and certain websites to use. This was an area I hadn't yet researched for my future. (Biomedicine student No. 72)
Researching the Australian labour market (26%) • helped me to understand the major growth trends in jobs. This ultimately influenced the outcome of my job decision. Hence forth choosing my career in the health care/ scientific sector as an epidemiologist ~Top employment industries (Biomedicine student No. 74). • I was completely unaware about the statistics and number of people employed every year before researching for the My career module. I feel like it been really helpful in understanding the current situation for health professionals and the different ratios and expected increase in employment (Health Sciences student No. 72).
Planning for the future, including choosing a career to pursue (20%) • To be honest I really didn't know much at all about my future studies and career before completing this assignment. Although I already thought that I had a very clear vision of where I want to be and how I want to get there this module has made it that much clearer which is a great thing (Nutrition student No. 15). • The oral presentation that required me to say out loud or present out loud my plans for the future made it feel like I was cementing my goal for the future and provided me with the confidence to pursue my dream profession (Biomedicine student No. 45).

Results indicate that the module was useful for students enrolled in non-specialist, mixed, and specialist degrees alike. For example, a Dietetics student commented that the module 'has also broadened my knowledge about the different locations dietitians can pursue other than clinical settings such as hospital care.' (Dietetics student No. 14).

Students found all the main elements of the module helpful to their learning, and thought they had gained detailed practical knowledge of further study options, they noted that 'having to delve deeper really opened my eyes as to what the course entailed and what I would be doing throughout it.' (Biomedicine student No. 1).

Conducting research helped some students to make decisions about their career plans and was motivational:

> *Helped me to decide on a pathway, as previous to this module, I was still contemplating where I wanted to go with my degree. Now that I have a plan I feel more able and ready to achieve my dream career.* (Biomedicine student No. 13)

Students valued learning more about the labour market and in some cases, this helped them make decisions or relieved anxiety, as demonstrated by the following quote: 'Looking at the job market was also a huge boon and relief seeing the state of my dream career.'

Suggestions to better help students' career planning

One-hundred and sixty-five students provided open-ended responses to the question 'Suggest Any Practical Changes That Could Help Support Your Career Planning.' Most comments related to wanting more guidance on completing the module and career planning in general. Approximately one-fifth of responses related to practical changes students could make to improve their own career planning. The remaining students suggested no change or provision of opportunities within their course to engage with industry, alumni, and peers. The percentage of students who mentioned the theme and representative quotes are provided in Table 8.

Table 8. Themes Identified from Student Responses (N=165)

More guidance on module, career planning (30%)
• Further explanation on the Australian labour market because it is still slightly unclear. • More videos or presentation on the attributes and skills required so that myself and other students can inherit a more complex understanding of how to master these skills.
Personal development (22%)
• By volunteering in different areas of this industry I will be able to pinpoint and determine where I could work within this field, also gain some real life understanding how a day in the life of a nutritionalist *[sic]* will look, along with the tasks and day to day activities I will perform • Further develop my communication and leadership skills through practical methods such as volunteering and working.
No change (19%)
• I can't really think of any, I think this module was probably the most useful task out of any that I have done this year. They should make all students do this in year 12 before they enter into courses that they don't know about.
Engagement with industry, alumni, peers (18%)
• I believe if universities assisted with some work experience in a variety of health professions for students doing broad degrees such as Health science, would assist them in making a better choice when choosing there *[sic]* career. • Access to alumni from the dream profession who could provide tips or guide me through the process of achieving their dream profession.

The main suggestion for improvement was for more guidance and input from staff on their career exploration activities, specifically on finding and interpreting information on pathways and the labour market. Several students suggested they should have been required to research multiple jobs and not just one, seeming not to recognise that they had developed the skills to do this in their own time. Students were eager for opportunities within their courses to gain industry experience through internships and placements and to connect more with industry, alumni, and peers to learn about study, jobs and work, as exemplified by the following quote: 'My career planning could be supported by an opportunity to speak with someone from my dream profession to learn about their experiences and hear their advice about the profession itself and their journey into it.' (Health Sciences student No. 2).

These suggestions align with four of the connectedness pedagogies in Bridgstock's connectedness learning model: student partnerships, industry teaching, alumni engagement, and work integrated learning (Bridgstock & Tippett, 2019). Further, the National Priorities and Industry Linkage Fund (NPILF; Department of Education, 2020b) allocates funding to Australian universities to support

innovative and diverse collaborations with industry to produce job-ready graduates. The fund aims to increase internships, practicums, and innovative approaches to working-integrated learning, and build partnerships between universities and industry in teaching and learning and research. There is a chance to leverage student interest, and this funding, to increase the awareness of current opportunities for our students to build connections and gain practical experience.

Students' perceptions of their career management skills

Upon completion of the module, most students rated their knowledge of what a professional does in their preferred career as Good or Excellent (Figure 5). Fewer students rated their knowledge of the state of the Australian labour market for the profession as Good or Excellent (Figure 5). A large majority of students thought they had a Good or Excellent ability to research a course or job of interest (Figure 5). Students were very confident in their ratings of their transferable skills and personal attributes, with most students rating them as Good or Excellent (Figure 5).

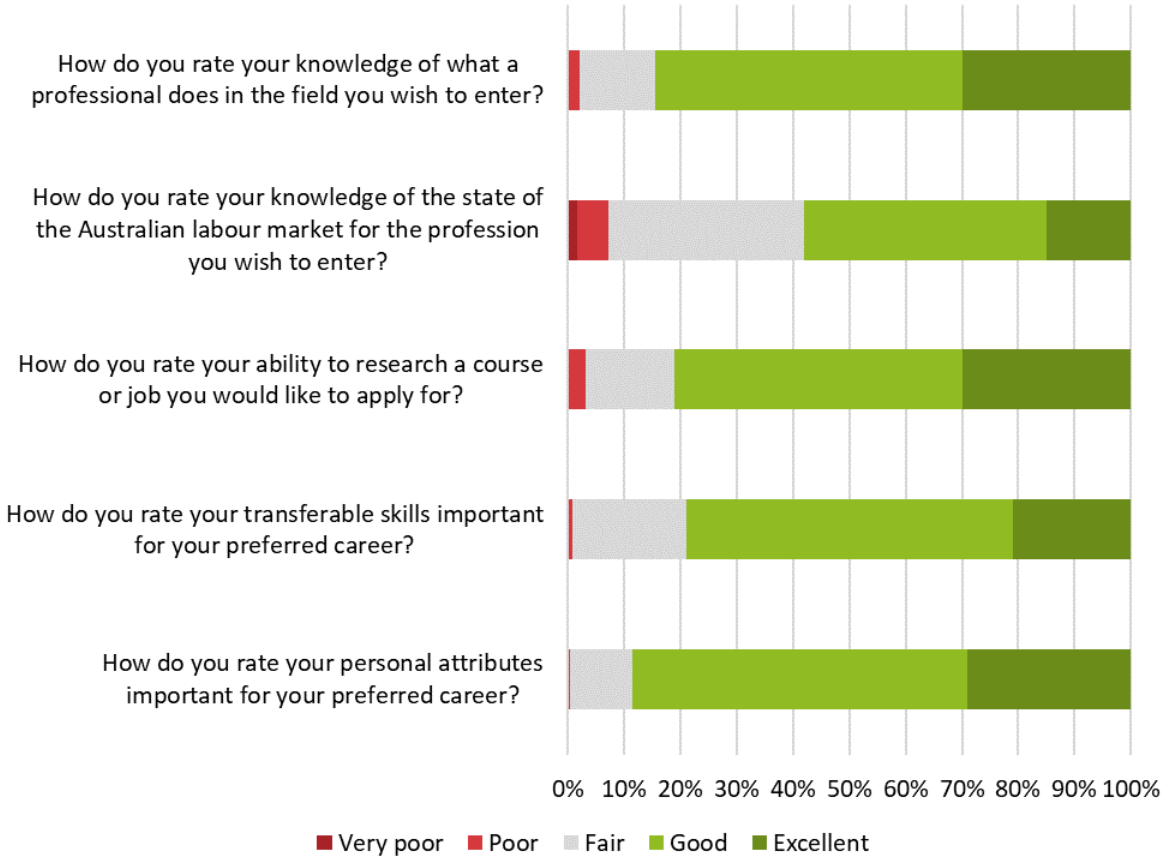

Figure 5. Students' Self-Ratings of Their Career Management Skills (N=262).

Discussion

The findings of this study showed that students gained knowledge related to their preferred career including the labour market, and the transferable skills and personal attributes that employers seek. Students developed research and reflection skills useful for their future career development. Most students identified their current university course as the main way they were developing important skills and attributes, with their course, volunteering and further study the main ways they planned to continue skill and attribute development.

Research on logistics of entering preferred career and the Australian labour market

Analysis of videos showed that most students were able to identify the steps they needed to take to apply for further study or a job and locate information about the Australian labour market, and this was consistent with their perceived abilities. Many students reported conducting this research to be the most useful aspect of the module. Most students thought they had learnt about the labour market but still rated their knowledge of the labour market lower than any of the other skills or knowledge. Ryan (1999) found that activities designed to help people to understand or build support for their career choice and plans was one of the five components of career interventions critical for success in supporting development of career choice outcomes (i.e., decidedness, choice certainty, choice satisfaction, and indecision, career decision-making, self-efficacy beliefs, career maturity, congruence, and vocational identity). Baluku et al. (2021) suggest that students can experience enhanced future career fulfillment through understanding that their training background is relevant to the labour market, which can, in turn, provide employment opportunities. Appraisal of external factors such as labour market conditions and demand of the discipline area helps students to develop their perceived employability (Rothwell et al., 2008) which contributes to intrinsic career satisfaction. The meta-analysis undertaken by Brown et al. (2003) on interventions designed to support students in making career choices found career development activities that introduced students to sources of occupational information with provision of in-class time to use these resources had positive effects on career choice outcomes. In these studies, students could gather occupational information in class through visits to career libraries, guest speakers, or computer modules. Students in the present study indicated that they would like more guidance from staff to find and interpret information about pathways and the labour market. While class time is not available for the activities described by Brown et al. (2021), the authors plan to enhance the curriculum scaffold relating to this aspect of the module and embed additional resources that guide student engagement with resources.

Most students in the present study intended to pursue careers that required further study. This was not surprising as many students were enrolled in non-specialist or mixed degrees and interested in careers in medical and allied health professions which require specialist training. Qualitative content analysis indicated that many students thought the module helped them make more detailed plans around entry to their course of choice, with some specifically mentioning how the module prompted them to alter their study plan.

Transferable skills and personal attributes

Consistent with recommendations of employability experts (Jorre de St Jorre & Oliver, 2018; Oliver, 2013), the module described in the present study explicitly focused on the transferable skills and personal attributes that contribute to student employability. Student confidence and understanding of graduate learning outcomes was found to be greater when the attributes were talked about and put into context by a teacher or part of an assessment (Jorre de St Jorre & Oliver, 2018). The present study found that after completing this module and engaging with the institution's Career Ready Advantage Capability Framework (La Trobe University, 2018), most students felt they had learned more about the transferable skills and personal attributes sought by employers and required in their preferred career. Students frequently reported that one of the most helpful aspects of the module was the opportunity to learn more about these transferable skills and personal attributes. Further, most students rated their current attainment of transferable skills and personal attributes as excellent or good. Explicitly enabling students to realise their competencies is essential for transition to work activities such as job search and obtaining employment (Baluku et al., 2021), and appraisal of one's own academic performance and skills helps students to develop their perceived employability (Rothwell et al., 2008) and, therefore, intrinsic career satisfaction. Our findings are consistent with those of Jorre de St Jorre and Oliver (2018) who found that incorporation of graduate capabilities into assessment tasks increased 'students' understanding and confidence in their capabilities' and therefore, their preparation for employment was improved.

Most important transferable skills and personal attributes

In 2019, 75% of Australian employers reported placing as much importance on personal qualities as technical skills (National Skills Commission, 2019). In the present study, the most commonly reported transferable skill important for students' preferred careers was communication and literacy, with personal and professional and inquiry and analysis cited less frequently. However, analysis of the sub-categories for personal and professional, shows that leadership and teamwork was commonly mentioned. Similarly, analysis of the sub-categories for inquiry and analysis shows that critical thinking and problem solving was also frequently mentioned. Taken together, the findings indicate that all skill categories were deemed important by students, although there was variation on the importance placed across sub-categories.

The skills students identified as important are consistent with what employers and industry, globally, report seeking (Business Council of Australia, 2018; Department of Education, 2020b; Department of Employment, 2018; Drummond & Kachuck Rosenbluth, 2015; Georgetown University Center on Education and the Workforce, 2020; Hart Research Associates, 2013; National Association of Colleges and Employers, 2016). Most students wanted to pursue careers in Health and Community Service, which aligns with the transferable skills they most cited as being important. Also aligned was the ranking of empathy as the most important personal attribute, with empathy in medical practitioners associated with improved clinical outcomes (Del Canale et al., 2012; Hojat et al., 2011). Passion was frequently mentioned as important and has been linked with prevention of burnout and secondary traumatic stress in health care workers (Moreno-Jiménez et al., 2020).

Few students mentioned digital literacy as important, despite the importance placed on it by employers (Department of Employment, 2018; Drummond & Kachuck Rosenbluth, 2015). Digital literacy was one of the top four skills in demand for junior or entry positions, with demand up 212% between 2012 and 2015 (Foundation for Young Australians, 2017), and one in three Australian businesses brought in new technology due to COVID-19 (National Skills Commission, 2020). There has been a rise in provision of telehealth services (delivery of health care services where distance is a critical factor) using information and communication technologies (Monaghesh & Hajizadeh, 2020). Telehealth is likely to play an increased role in the future delivery of healthcare (Fisk et al., 2020), with experts recommending that professional bodies consider including telehealth competencies in their training of health care professionals (Thomas et al., 2020). Similarly, other transferable skills and personal attributes that are likely to be important were not recognised by students in the present study, therefore, there exists scope to further contextualise these skills for students (Jorre de St Jorre & Oliver, 2018). The career research module was designed to be complemented by an informational interview (Lexis et al., 2021) module which allows students to learn more about the day-to-day activities of a professional in their preferred career. On completion of both modules, students may have a more holistic understanding of the skills that will be important for their careers.

Development of transferable skills and personal attributes

In the module described in the present study, students used an ePortfolio to reflect on transferable skills and personal attributes with most students identifying their current university studies as being their main means of developing these thus far. Ryan (1999) found that one of five components of career interventions critical for success was requiring people to write their goals, plans and occupational analyses into a workbook or log. Student reflection on transferable skills and personal attributes, in the context of their preferred career, personalises their learning and makes them more aware of the connections between their discipline studies, work-integrated learning, and their career goals (McIlveen et al., 2011). Most, but not all, students identified the relations between their university studies and development of skills and attributes. A possible explanation lies in the lack of shared understanding of graduate outcomes and their importance by academic staff in higher education (Barrie et al., 2014). Academics who are not able to see for themselves how the subjects they coordinate/teach contribute to development of graduate outcomes will not be able to make this link clear to students (Jorre de St Jorre & Oliver, 2018). Supporting academic staff to improve their

understanding of the interplay between course learning outcomes, subject learning outcomes, graduate outcomes, and employability skills, and their contribution beyond teaching discipline-specific knowledge and skills, will improve curricula and collaboration between staff (Jorre de St Jorre & Oliver, 2018; Oliver, 2013; Uchiyama & Radin, 2009).

Employability skills are developed by accumulating knowledge and skills from a variety of life experiences, not only academic studies (Jorre de St Jorre & Oliver, 2018). Consistent with this, students in the present study identified that they developed their transferable skills and personal attributes through paid work; activities that connected them with others such as community engagement, playing sports, clubs, socialising, and networking; and volunteer work. Extracurricular activities (McKeown & Lindorff, 2011), paid work (Muldoon, 2009), and student community engagement including volunteer work (Bourner & Millican, 2011) have been found to improve student employability skill development.

Students intended to use their current university studies, volunteer work, placements/internships, and further study to continue development of transferable skills and personal attributes. Students reported that one of the most helpful aspects of the module was how it helped them to plan for the future. This is consistent with findings of Spokane and Rarick (1998) who reported that goal setting was one of the four most helpful outcomes of individual career counselling. Brown et al. (2003) suggested that people would be most likely to adhere to their career goals if they also document where and when they will act on their plans. This aspect of the module may be improved in future by asking students to think about the timelines for their development goals.

Limitations and future research

A limitation of the current study is that students' self-ratings were only conducted on completion of the module. It would have been preferable to have students conduct the self-ratings pre- and post-module to better determine the impact of the module on student perceptions of their knowledge and career management skills.

The lack of pre-assessment data in this study did not allow for a direct comparison of student sentiment before and after completing the module. Future iterations may benefit from a pre-assessment reflection as well as a post-assessment reflection to measure the effectiveness of this task in improving career management skills. Following up on the progress made by students following this module (e.g., in third year) would provide insight into the long-term impact of this module on students' career management skills.

Summary

As we grapple with the impact of the COVID-19 pandemic, more than ever, universities have a role to play in preparing students to transition into the world of work. The challenges faced by young jobseekers, with less experience and smaller networks, will be exacerbated by the downturn in the global economy. Embedding tasks that support students to develop their career management skills, specifically in researching and understanding their career options and the labour market, will give them an edge. Students in non-specialist, mixed and specialist courses found this module helped them to develop their career management skills but sought more support from staff. The authors suggest that all university courses would benefit from embedding such a task in the early stages of students' undergraduate careers.

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Appendix 1

My Career: Career research & presentation student guide:
https://doi.org/10.26181/618071886a54d