

ePortfolios as a Tool for Improving the Transition from Agri-Student to Employee: A Western Australian Employability Snapshot

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Keywords: employability, ePortfolio, work-integrated learning (WIL), graduate skills, tertiary education

Abstract

Future tertiary graduates will likely face increased job mobility and evolving workplace standards. Agribusinesses face significant challenges including a recognised skills shortage and more complex skill requirements due to technological advancements and globalisation. Agricultural discipline graduates must demonstrate proficiency in both technical and employability skills to meet these challenges. Universities have responded by incorporating transferrable skills and employability frameworks into graduate attributes and encouraging and supporting students to develop employability skills and professional identities through curriculum design, authentic assessment, and relevant extracurricular activities. However, given the variety of work-integrated learning experiences that graduates undertake, it is challenging to address how capabilities found in tertiary agribusiness degrees might be compiled and presented to stakeholders, including students themselves, who may not comprehend the nuances in depth and breadth of the curated student experience. This snapshot provides insights into employer and student perceptions of Agribusiness student graduate skills, identifying overlaps, differences, and tensions. Integrating ePortfolios can offer a solution, allowing students to showcase their learning journey and experiences digitally. This tool can support students in evidencing their abilities when applying for jobs. Recommendations are made for collecting evidence in agribusiness ePortfolios to demonstrate learning, proficiency, and transferable skills, improving student outcomes and transparency for employers.

Introduction

Agriculture/agribusiness context

The tertiary agriculture/agribusiness discipline offers a broad spectrum of potential careers, encompassing diverse professions including farming, finance, engineering, communication, advisory and consultancy, research, and education. This multidisciplinary nature is reflected in programs that integrate units from various scientific disciplines, as well as social sciences and economics (Botwright Acuña & Able, 2016). Graduates are expected to apply practical/vocational skills, applied science, and management knowledge and skills to a range of agricultural sub-disciplines, emphasising the incorporation of a range of multidisciplinary skills into a variety of agricultural systems through inquiry, problem-solving, communication, and professionalism (Wilkes & Burns, 2019). The ongoing evolution of technology and the growing complexity and adaptability demanded by associated agricultural and agribusiness industries have compelled potential employers in the sector to demand more depth and breadth in discipline knowledge and understanding from graduates (Chopra & Bhilare, 2020; Noel & Qenani, 2013). Despite predictions suggesting a reduction in on-farm labour requirements due to increased technology adoption, the ever-evolving job demands are now characterised by a

heightened need for advanced technological skills (Pratley et al., 2022). As technologies and consumer expectations continue to evolve, and with farmers recognising themselves as business managers (Bassett et al., 2022), it seems that transferrable generic skills combined with digitalisation and precision of new technology is likely to shape the future of graduate employment.

Upon graduation, students are required to possess both employability skills and technical capabilities that will evolve over their professional journeys (Pratley, 2012). Assessment of technical skills should align with professional requirements, while employability skills such as teamwork, initiative, decision-making, and communication are crucial for workplace success (Juhász & Horvath-Csikos, 2021). Work-integrated learning (WIL) emerges as a critical component, offering opportunities to connect theory with practice, gain industry insights, and develop a professional identity (Carter, 2021). Despite the high demand for agriculture graduates, as evidenced by job market statistics (Pratley, 2016), the typical 3-year duration of agriculture/agribusiness courses poses challenges in ensuring students acquire the necessary knowledge for diverse industries (Bennett & Low, 2021). The potential gap between graduates' skills and employer requirements may stem from students' limited understanding of how to demonstrate skills or lecturers' capability to embed them into academic programs (Robinson et al., 2007). Therefore, educational institutions must embed opportunities to recognise and develop these skills throughout the undergraduate program (Carter et al., 2023). Tertiary institutions must expose agricultural students to a broad range of skills, teach them to recognise and evidence these skills, and instil principles of lifelong learning and career upskilling.

ePortfolios

Electronic Portfolios, or ePortfolios, are digital tools that can be used to capture the tertiary student experience. According to Ferns and Comfort (2014) digital portfolios are dynamic collections of various artefacts, encompassing work samples, learning resources, and evidence demonstrating skills and accomplishments. Buchem (2016) proposes that ePortfolios are useful for serving multiple purposes, including assessment, journaling, and profiling. While the types of artefacts collated in student ePortfolios can vary, they are likely to include writing samples, images, videos, and feedback. These artefacts are generally curated to align with skill or knowledge demonstration, assessment, learning journey over time, reflection, current and future personal and professional identity, learning engagement, and employability (Butler et al., 2006; Chaudhuri & Cabau, 2017; Cote & Emmett, 2015; Ferns & Comfort, 2014).

In tertiary education, ePortfolios are often used as a tool to assess students against unit or program learning outcomes or against industry standards (Butler et. al., 2006). Beyond their primary purpose, embedding ePortfolios into a program can offer additional benefits such as enhancing technological, communication, and organisational skills, fostering student awareness of their learning journey, identifying strengths and gaps in skills or knowledge, demonstrating theory in practice, and showcasing employability skills and career-readiness traits (Butler et. al., 2006; Carter et al., 2023). ePortfolios are versatile tools that can support learning, assessment, and professional development in various contexts, curated by students with their own goals in mind.

Work- integrated learning (WIL)

WIL involves the integration of practical work experiences in classroom or professional settings with traditional academic learning. The embedding of curricular and co-curricular WIL aims to provide students with opportunities to apply theoretical knowledge in real-world work environments, fostering the development of practical skills and enhancing the overall learning experience by connecting and deriving meaning from both contexts (Cote & Emmett, 2015; McRae & Johnston, 2016). WIL, especially when conducted in the form of industry experience, often provides a highly contextualised set of skills; therefore, assessing the competencies and skills gained poses a variety of challenges (Ferns & Comfort, 2014).

The challenges in conducting authentic WIL assessments are knowing what to evaluate, how to evaluate it, and how stakeholders could effectively mentor students and communicate progress against defined criteria (Cooper et al., 2010; Gülbahar & Tinmaz, 2006). Because WIL learning is authentic and often situational, optimal assessment practices should prioritise incorporating feedback and reflection from both students and stakeholders (Carter et al., 2023), including fair and transparent criteria that acknowledge and assess the learning outcomes that students gain from their WIL experiences (Buchem, 2016; McRae & Johnston, 2016). Embedding ePortfolios offers students a platform to not only showcase their knowledge of discipline content but also to demonstrate practical application in a professional context (Carter, 2021). This supports authentic assessment tasks over traditional methodologies, such as tests and examinations, allowing for comprehensive student-centric contextual demonstrations beyond the limits of traditional assessment models.

Employability

Employability encompasses the graduates' ability to apply not only their degree-based skills and knowledge but also interpersonal skills and processes in the workplace (Garwe, 2020). Graduates must acquire and demonstrate skills, knowledge, and attributes, or 'capabilities' (Ferns & Comfort, 2014) according to employer expectations. Higher education's responsibility to students is to enhance their graduate employability, ensuring that graduates possess the necessary skills and attributes sought by employers (Suleman, 2018; Yorke, 2006). Therefore, the potential use of ePortfolios as a tool for reflection, capability demonstration, and a repository for artefacts must be discussed in the context of creating worthwhile learning experiences within an employability realm.

Professional Identity

In shaping students for future employment, an important element in the role of higher education is therefore the need for students to recognise and develop their individual professional identity. Professional identity involves identifying and understanding the behaviours and standards expected within a particular profession, aligned with the ideology, values, and beliefs expected to be demonstrated by an individual within that professional sphere (Trede et al., 2012). Although there are clear links between the teaching and assessment of employability skills and professional identity, explicit consideration of this aspect is uncommon in traditional learning and assessment practices (Daniels & Brooker, 2014; Trede, 2012). Professional identity is an important facet of employability. The two are cyclical in cause and effect, and both can be seen as ongoing processes rather than defined endpoints to be attained.

An integral component of employability is the cultivation of professional identity. Fitzgerald (2020) notes that the literature on this topic commonly encompasses themes beyond mere certification of expected skills and the ability to perform professional tasks. It extends to personal alignment with the attitudes and values inherent in the profession, along with a sense of belonging to the community of practice. This overarching concept involves individuals

internalising and manifesting professional identity as an amalgamation of professional standards, expectations, ethical values, ideology, and conduct (Jackson, 2017). Effectively embracing this idea necessitates not only an understanding of the skills and qualities essential to the chosen occupation, but also a nuanced awareness of the depth and breadth of these attributes within oneself (Carter, 2023; Jackson, 2017). Paterson et al. (2002) argue that this requires processes including participation, socialisation and reflection, as well as a commitment to the social aspects of a profession. Jackson (2017) agrees and additionally suggests that there are some differences in the literature between the professional identity of those entering the field versus that of established professionals. Given that those on entry to a profession are developing rather than already being professionals, they will possess a less mature professional identity, which Jackson (2016) suggests should be differentiated as pre-professional identity.

The following sections will present a snapshot of student and employer understanding of agribusiness graduate employability skills, comparing the perceptions of each group. Student perceptions on employability, professional identity and collecting digital artefacts for providing evidence of learning will also be presented. The potential to use ePortfolios as a tool to improve the transition of graduates to the workplace will be considered, followed by recommendations to consider when implementing ePortfolios in a tertiary education program. This paper aims to answer what graduate capabilities are expected by agribusiness stakeholders and whether embedding ePortfolios in curricula could enable alignment of student outcomes with these capabilities.

Methodology

To better understand the stakeholder understanding of employability skills of agribusiness graduates, web-based surveys were provided to each of two groups: students enrolled in agricultural programs at Curtin University in 2021; and Western Australian industry stakeholders who had previously provided WIL industry experience for Curtin University students. Each survey consisted of a combination of qualitative and quantitative responses, including Likert scales, discrete choices, semantic differential scales, unstructured responses, and ranking. The survey questions and response choices, such as which skills to include, were informed by literature reviews and conversations with a variety of interested parties. The final surveys were developed with consultation from people experienced in designing graduate outcomes surveys and contextualised by agribusiness stakeholders.

The student survey aimed to determine whether students understood professional identity and employability, how their understanding influences their acceptance of digital collections or artefacts, and whether their understanding of desirable industry skills aligned with the employer survey results. The employer survey aimed to determine the capabilities desired by employers and other stakeholders in agribusiness and agricultural industries.

Thematic analysis and descriptive statistics were used to analyse the data obtained from both surveys. Thematic analysis was employed to connect responses and classify data into themes or 'buckets'. Descriptive statistics were used for data summarisation and interpretation (Kiger & Varpio, 2020). This allowed the responses to be encapsulated and represented graphically in order to identify patterns or trends (Cooksey, 2020).

The research presented and reported in this paper was conducted in accordance with the National Health and Medical Research Council National Statement on Ethical Conduct in Human Research (2007) – updated March 2014. The research study received human research ethics approval from the Curtin University Human Research Ethics Committee (EC00262), Approval Number HRE2020-0700.

Results and discussion

A total of 36 student surveys were collected, with 33% respondents expected to graduate in 2021, 36% in 2022, and 31% in 2023 or later. This represented a 29.75% survey response rate across the total group of 121 students. Most respondents were enrolled in Bachelor of Agribusiness (42%) or Associate Degree in Agribusiness (28%) programs, while Bachelor of Science in Agricultural Science accounted for 3% of respondents and the remainder falling under "Other/ Not Specified". Regarding future career aspirations, most students expressed interest in employment within Agronomy (28%) or Primary Production (33%), while 11% selected Consultancy. The remainder selected "Unsure" or "Other". In terms of job-seeking status, 14 out of the 36 respondents were not actively seeking employment, with 3 expecting to graduate in 2021, 5 in 2022, and 6 in 2023 or later. Among those actively seeking employment, the most preferred method was through word of mouth, selected by 61% of students. Online platforms like Seek and social media were also popular choices, selected 17 and 14 times respectively. Additionally, 22% of students responded that they searched directly through desired business websites or university-shared opportunities.

In total, 23 employer surveys were received, which represented an 18.4% response rate. Most respondents represented businesses focused on agronomy and primary production, each comprising approximately 30% of the total. The remaining respondents identified their businesses as Retail (13%), Consultancy (9%), or Other (17%). Businesses varied in size, with approximately 22% responding businesses having 1-4 employees, 17% with 5-19 employees, and approximately 30% each with 20-100 and over 100 employees. When asked about the proportion of university graduates among their employees, responses indicated that 'Around Half', 'Most', or 'All' employees held university degrees, totalling 16 out of 23 responses (approximately 70%). 'A Few' and 'None' accounted for 5 and 2 responses respectively. Of the respondents, 58% of employers required their early career employees to have at least a tertiary Associate Degree level of education. Regarding recruiting, approximately 68% of respondents stated 'yes' or 'usually' when asked if they advertised employment positions to the general public. Among those who answered 'sometimes' or 'no', themes emerged indicating internal hiring or headhunting via networks or previous employees.

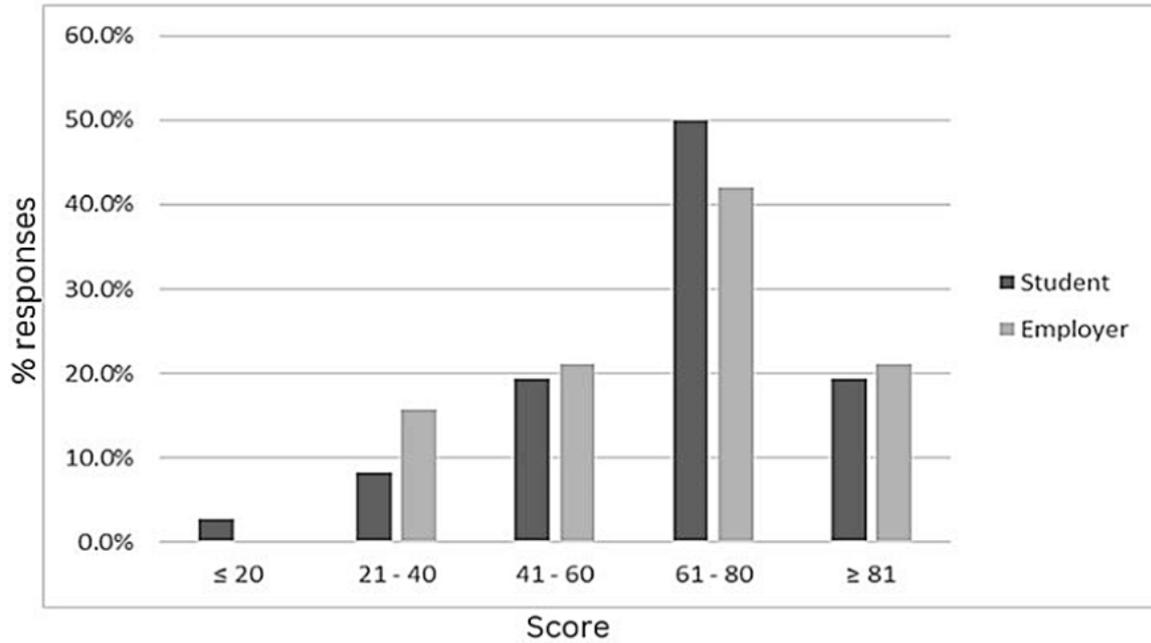


Figure 1. Student responses (grouped) to “Do you feel that you will be qualified for the field you wish to work in?” (n=36) and employer responses (grouped) ‘Do you feel that the applicant field is qualified for the positions you offer?’ (n=23) where 0 = low and 100 = high (Carter, 2023)

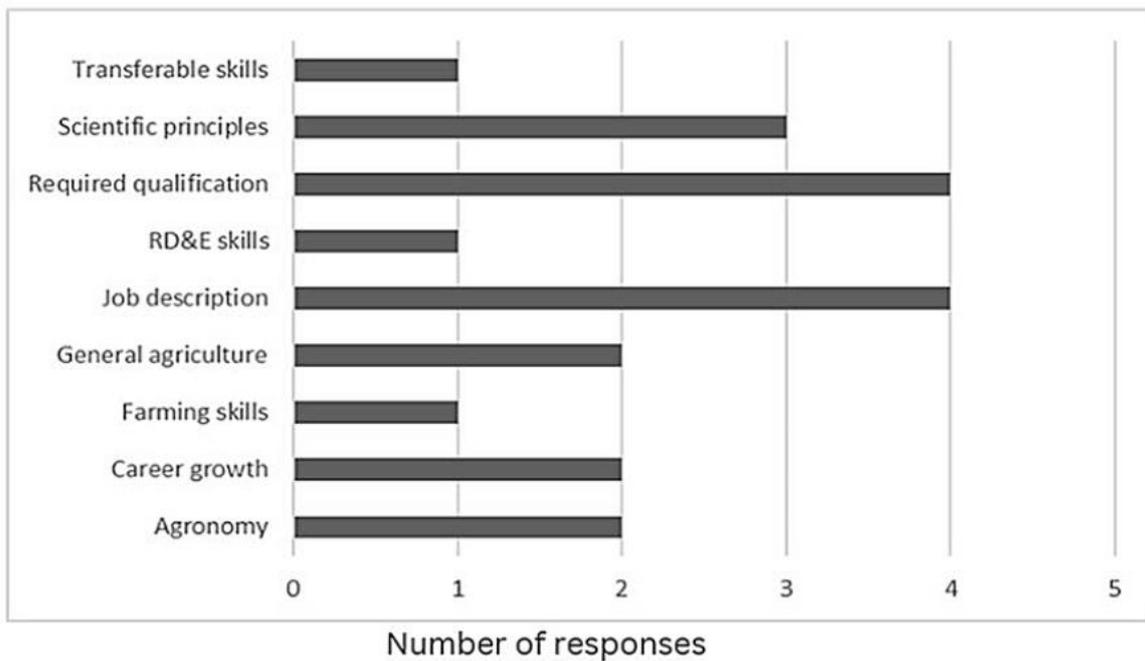


Figure 2. Number of employer responses (grouped) to ‘Why do you currently hire people with tertiary-level agribusiness qualifications, such as Associate Degree, Bachelor or Post-Graduate qualifications?’ n=16, free text responses categorised into themes with multiple themes allowed. (Carter, 2023)

Historically, professional agriculture in Australia has lamented the shortage of graduates in the discipline (Pratley & Archer, 2017). It was traditionally seen as under-educated, for example

less than 2% of the industry workforce had any formal post-secondary education in the 1960's (Falvey & Bardsley, 1995). While Pratley and Archer (2017) offer improvement on this statistic over time, saying that approximately 12% of the workforce had post-secondary qualifications by 2012, the stereotype of the under-educated and technologically deficient agriculturalist persists (PIEFA, 2020). Both industry and student participants support tertiary education as useful for industry requirements, as seen in Figure 1. Figure 2 illustrates that demand for tertiary graduates arises from two closely related themes: the assertion that a qualification is essential for the respective career, such as in roles including agronomy and consulting, and that the specific job description mandates it, such as in graduate roles. These two themes collectively encompass most of the employer responses to this question in the survey.

Student vs employer perceptions on graduate skills

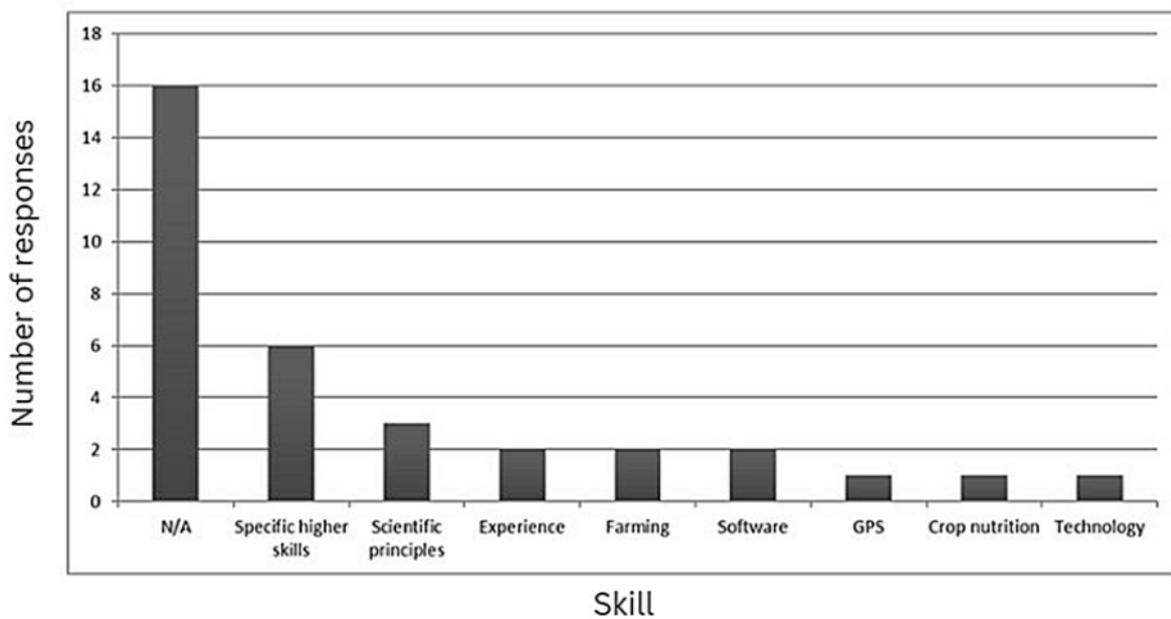


Figure 3. Number of employer responses (grouped) to “What are the gaps in the technical skills of your applicant pool?”. n=23, multiple responses allowed. (Carter, 2023)

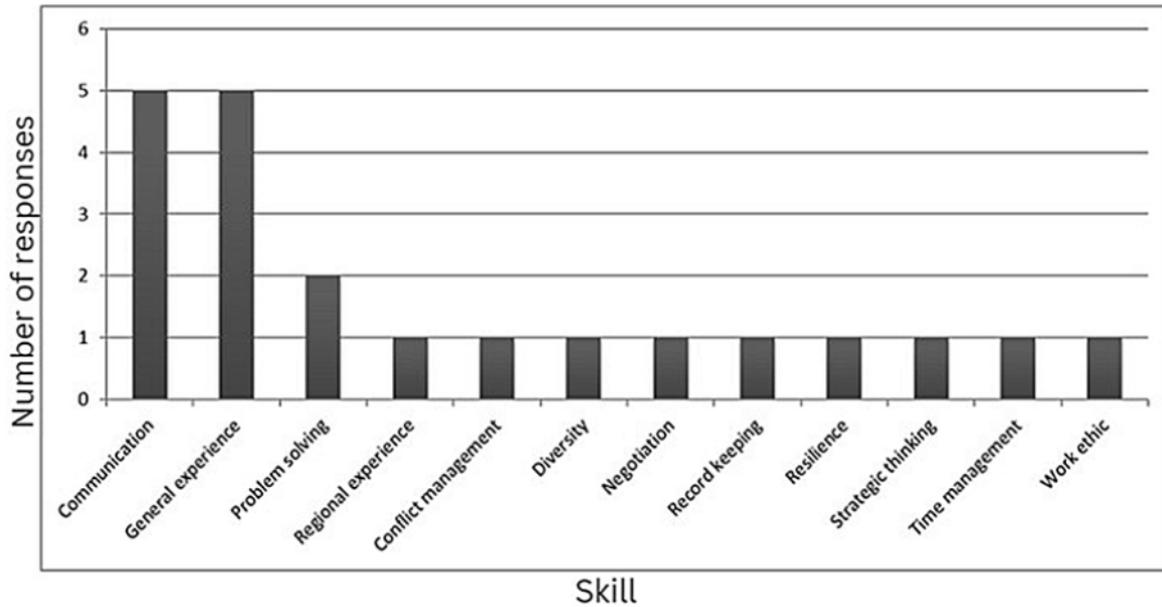


Figure 4. Number of employer responses (grouped) to “What are the gaps in the non-technical skills of your applicant pool?” n=23, multiple responses allowed. (Carter, 2023)

Table 1. Number of employer responses to “Of the following transferable skills, which five would be your highest priority to see evidenced by a graduate seeking employment?” by organisation size. n=23. (Adapted from Carter, 2023)

	How many employees in your organisation? (FTE)			
	Total responses	1-19	20-99	100+
		n=9	n=7	n=7
Critical thinking	9	2	4	3
Problem Solving	12	4	5	3
Communication skills	13	5	5	3
Organisational skills	5	2	0	3
Communication with others from different backgrounds	3	1	1	1
Group/teamwork	5	2	3	0
Group/team leadership	2	1	0	1
Independent work	11	6	2	3
Skills in oral presentations	2	1	0	1
Professionalism	9	4	2	3
Time management skills	9	2	3	4
Working safely	7	5	2	0

Miller et al. (2006) note that employers are recognising the importance of transferrable employability skills in their graduate recruitment. This study supports this sentiment, with most industry respondents advocating no applicable gaps in the technical skills of agricultural graduates who apply for their jobs, but around half proposing gaps in the non-technical skills, as per Figure 3 and Figure 4 respectively. Table 1 shows that communication, problem-solving, and independent working skills emerged as commonly chosen skills across various workplaces, though there were variations of how different sized enterprises prioritised them. While students and industry acknowledge the importance of possessing employability skills such as problem solving, time management, professionalism, critical thinking, and communication, there appears to be a misalignment between the perceived importance of communication between student and employer respondents.

Table 2. Percentage of student responses to “Of the following transferable skills, which 5 would be your highest priority to be able to demonstrate to potential employers?” (n=36) with the associated skill rank (1= highest ranked skill) from the employer survey (n=23) (Adapted from Carter, 2023)

	Student Checked Percent	Employer response rank
Problem Solving	63.9%	2
Organisational skills	61.1%	8
Time management skills	61.1%	4
Professionalism	58.3%	4
Critical thinking	50.0%	4
Communication skills	50.0%	1
Group/teamwork	47.2%	8
Group/team leadership	38.9%	11
Working safely	36.1%	7
Independent work	30.6%	3
Communication with others from different backgrounds	22.2%	10
Skills in oral presentations	2.8%	11
Social media skills	0.0%	13

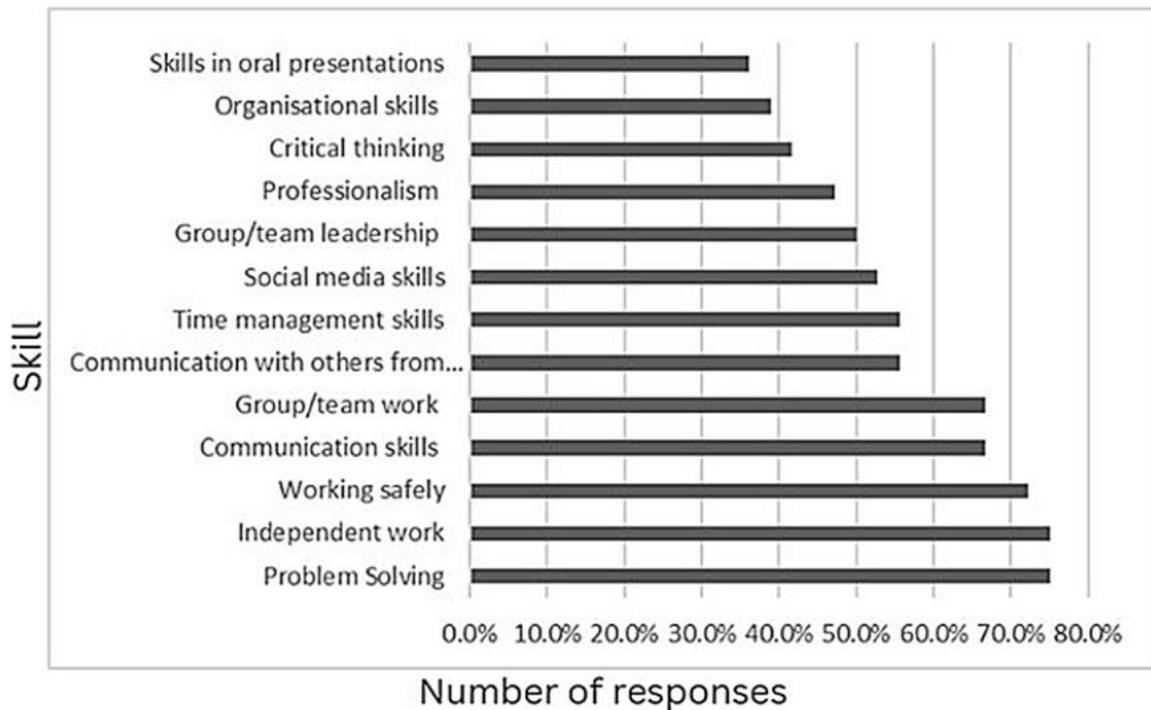


Figure 5. Student responses (n=36) to “Which of the following non-technical skills did you feel like you were competent before your university journey began?”. Multiple responses allowed. (Carter, 2023)

Table 2 shows that problem-solving skills were a priority for most students, which aligns with employer preferences, where it ranked second. However, communication—the top-ranked skill by employers—was chosen by only 50% of students. Figure 5 shows that approximately 65% of students surveyed believed they possessed adequate communication skills before entering tertiary education, whereas employers consider it as their topmost non-technical skill requirement and identified it as the equal highest gap in graduate non-technical skills. As an aside, it must be noted that scientific writing and oral presentation skills are often seen by students as technical skills rather than employability skills; hence, respondents to the survey did not group all facets of communication skills together. So why do students believe they are competent in communication skills prior to university studies, while industry not only ranks it as a priority but also sees it as a skill that is not at the level they would like? Perhaps students underestimate the significance and complexity of the subject (Succi & Canovi, 2020), or perhaps oral communication skills are not given due importance in tertiary assessments (Mercer-Mapstone & Matthews, 2017), and students may be unaware of the ways to develop and demonstrate their proficiency in transferable skills (Succi & Canovi, 2020).

Student perceptions on employability, professional identity and collecting digital artefacts for providing evidence of learning

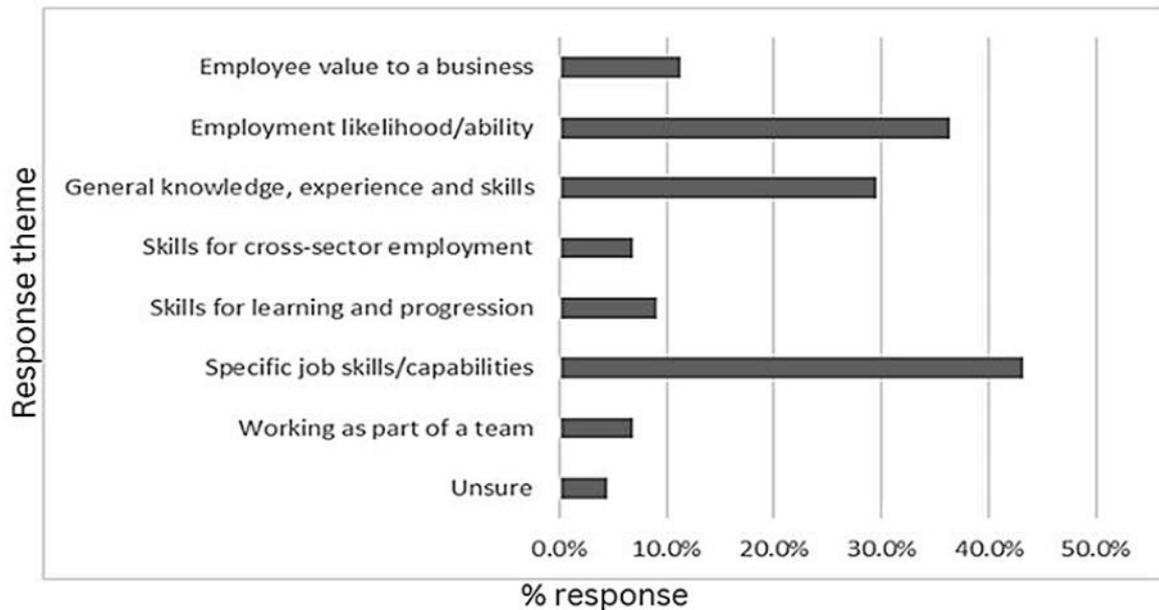


Figure 6. Percentage of themed student responses to "What does employability mean to you?". Free text with multiple themes allowed (n=36). (Carter, 2023)

This study supports the idea of a less mature professional identity, but perhaps not in the way Jackson (2016) was suggesting. In the context of this study, students demonstrate a certain vagueness in their comprehension of both employability and professional identity. Although they acknowledged the connection between employability and employment, a substantial number tended to view employability through a narrow lens, associating it primarily with a specific job or a particular skill set, as per Figure 6. While such perspectives may be true within their individual circumstances, they fall short of capturing the nuanced process of cultivating employability skills. This suggests a potential gap in students' understanding of the broader and more dynamic aspects of employability and professional identity, as these concepts extend beyond mere job-specific skills. However, it must be noted that employability and being employed are not identical concepts. An individual may find themselves employable yet unemployed (Artess et al., 2017), as employment is dependent on factors external to the individual, such as economic and labour conditions, university quality and career mobility (Jackson, 2016). Also, employability is not a singular achievement with a defined endpoint of job entry; it is a process involving capacity to secure and maintain meaningful employment which is ongoing and changes contextually and individually over time (Tomlinson & Nghia, 2020). Graduates must be able to continue to develop their skills over time and circumstance, reorienting their focus and goals as they transition their professional identity through their work life (Tomlinson & Nghia, 2020). Recent research has reframed employability as a "socially constructed process that entails graduates developing a meaningful relationship with the labour market and its key social actors" (Tomlinson & Jackson, 2021, p. 885). Therefore, employability and the associated development of a professional identity can be strengthened for ongoing skill and career development over time.

In a tertiary education context such as this study, a crucial element of shaping professional identity involves the social aspect of students acquiring the ability to behave as competent and credible professionals, deemed suitable for employment in their desired field (Palmer et al., 2018). Professional identity, in this context, serves as the link between higher education and

the attainment of desired employment. Research indicates that when students fail to establish a strong connection with their chosen profession, meaning they do not form a robust professional identity, their motivation may wane (Tomlinson & Jackson, 2019). This in turn leads to disengagement, which adversely affects self-confidence, goal setting and attainment, and academic success.

Table 3. Bucketed relationship of student selections in "Have you heard of professional identity?" (n=36) and "Do you currently collect digital artefacts to provide future evidence of your learning?" (n=36) (Carter, 2023)

	Yes OR intending to in the future	No
Yes OR Vaguely	11 (31.4%)	4 (11.4%)
No	6 (17.1%)	14 (40%)

The vague understanding of professional identity and employability seen in this study may be why over half of the students surveyed do not intend to collect digital artefacts to provide future evidence of learning. According to Table 3, 40% of respondents had not heard of professional identity, do not currently collect digital artefacts, and did not intend to in the future. Further research into this context could compare these results with the students' intended future careers and compare the results between student year groups, as both of these are likely to have an effect. Given Pratley (2017) identified an oversupply of jobs to graduate numbers, perhaps students feel so employable that they do not need to solidify their professional identity with digital artefacts. Also, over 60% of students were looking for employment via word of mouth, suggesting they may not yet recognise the value of digital evidence of their professional selves (Jackson, 2016). While student understanding of professional identity and employability does seem to influence their buy-in to digital collections or artefacts demonstrating competency, it is not clear as to the underlying reasons why, and whether they are specific to this study or discipline. However, research suggests integration of ePortfolios into tertiary agricultural programs is likely to enhance student comprehension of employability skills and professional identity, which in turn is expected to raise the probability of students actively curating digital artefacts to demonstrate their learning.

Potential to use ePortfolios to improve the transition of graduates to the workplace

Eynonet al. (2014) argue that utilising ePortfolios in tertiary education is associated with the integration of professional identity formation and academic scholarship, citing that students reporting a high degree of peer and lecturer interaction with their ePortfolios also reported higher engagement with the course and their personal development. When employability is viewed as an ongoing process rather than an endpoint to be achieved, the process of employability skills and professional identity formation becomes the focal point for higher education stakeholders (Tomlinson & Nghia, 2020). It seems therefore likely that embedding ePortfolios into tertiary agricultural education courses would lead to a greater understanding of employability skills and professional identity, increasing the likelihood of students collecting digital artefacts to evidence their learning and individualised experiences.

Capturing WIL experiences and capabilities in the tertiary setting is widely recognised as a challenging task (Ferns & Comfort, 2014). The integration of processes supporting the development of employability skills and professional identity formation can be achieved within curricula through authentic educational and WIL experiences (Carter, 2021; Tomlinson & Jackson, 2012). While WIL offers students valuable experiences to construct their professional identity and enhance employability skills, institutions must also facilitate scaffolded reflection and connection to effectively integrate learning and experiences with identity formation (Eynon et. al., 2014). ePortfolios serve as a valuable tool for achieving this goal. According to Butler et. al. (2006), ePortfolios can assist students in establishing connections across diverse aspects of their lives, facilitating the development of both their social identities and their identity within their academic discipline. Simatele (2015) concurs, saying that “embedded approaches to teaching transferable skills are more effective than bolt-on methods” and “e-portfolios can encourage the transfer of skills.” (Simatele, 2015, p. 872). Ferns and Comfort (2014) highlight assessment’s pivotal role in guiding WIL and learning, and the reflective impact of assessment on the overall learning experience.

To address the disconnect between the understanding of the students in this study and the needs of the industry seeking to employ them, a program-wide assessment approach that incorporates ePortfolios could be introduced. ePortfolios can serve as a tool for students to reflect on their development of employability skills and showcase their professional identity and/or career skills growth. Regular updates to ePortfolios enable students to track their professional identity goals and consolidate knowledge and skills into meaningful artefacts. These portfolios should not only highlight results, but also (1) demonstrate the learning process and skill development that align with employer expectations (Carter, 2023); (2) reduce the established mismatch between student understanding and employer requirements of non-technical skills (Heinrich et al., 2007); and (3) support the demonstration of technical skills. This can be achieved by meaningfully designing assessments to align with learning outcomes and provide suitable artefacts within an ePortfolio.

Recommendations for ePortfolio implementation

1. Ensure ePortfolios are implemented at a whole program level to showcase the progressive development of students throughout their degrees. This approach aims to capture the depth and breadth of skills essential for diverse employment opportunities within the field.
2. Strategically design assessment tasks within agriculture/agribusiness programs to ensure they yield evidence of learning outcomes and are therefore suitable as artefacts in the ePortfolio. This will include authentic assessment tasks encompassing both technical and transferrable skills.
3. Ensure that artefacts included in the ePortfolio serve as evidence of the learning process and skill development, emphasising relevance to the specific demands of the agriculture/agribusiness workplace and the transferability of skills between different careers. These artefacts are crucial in demonstrating practical applications of acquired knowledge.
4. Incorporate reflection of personal strengths and areas for improvement within an agricultural context.
5. Provide opportunities for peer feedback to enhance the depth and richness of the ePortfolio, fostering a culture of continuous improvement.
6. Students should own the ePortfolio to preserve its use as a life-long learning tool. They should be actively engaged in managing the quality, organisation, and currency

of their ePortfolio, contributing to a sense of accountability and personal investment in the process.

7. Build capacity in teaching staff in agriculture/agribusiness disciplines to enhance their capacity in utilising the ePortfolio within teaching programs. This should be a holistic process so that staff understand the mapping of authentic assessment over the program, and can understand the purpose and process from an institutional and industry perspective.
8. Collaborate with agriculture/agribusiness industries to shape the purpose, value, and content of the ePortfolio. Industry input not only informs the development of meaningful content but also facilitates clear communication of the benefits of utilising ePortfolios in the agricultural sector.
9. Choose a user-friendly and portable platform as the foundation for building the ePortfolio. This choice empowers students with the creativity to determine the structure and compilation of their ePortfolios and fosters a flexible and dynamic approach to showcasing their achievements.

Limitations

There was a notable gap in the literature: while research has explored the logical links between ePortfolios and external accreditation, further research is needed to examine the long-term effects of ongoing ePortfolio use on the careers of professionals in a broad range of contexts where the link between an undergraduate degree and registration with a regulatory body as an employment condition is not evident. Much of this study assumes that this is a useful skill over the long-term career of an individual.

This study combines all students into one group, when it is likely that their responses might differ between contexts. For example, it is unclear whether student perceptions change over the course of their studies, or whether students from different courses have different perspectives. The Dunning–Kruger effect is a cognitive bias that is likely to affect these results, further complicated by the different academic requirements for students entering an Associate Degree versus a Bachelor Degree.

The study also addresses the context in Western Australia prior to the disruption of GenAI in tertiary education. As recommendations, such as those found in Lodge et al.'s (2023) TEQSA Assessment Reform for the Age of Artificial Intelligence report, are released, themes of a systematic and programmatic approach utilising multiple assessment types are becoming increasingly important. Some of these are alluded to in this study, but were not addressed specifically by the survey, and would have a greater focus in upcoming discussion on the topics presented here.

Recommendations for further research

There were several areas where this research could be extended and refined. The incorporation of ePortfolios into tertiary agriculture education appears likely to enhance the student understanding of employability skills and professional identity. However, it is crucial to acknowledge that this conclusion is drawn from contexts that differ from those inherent to agriculture and agribusiness, and this conclusion is based on disciplines that do not have the same considerations as agriculture and agribusiness. These include a high proportion of

students seeking appointments via word of mouth, and the dearth of agriculture graduates compared to industry requirements.

A surprising result in the research was the number of students who believed themselves competent in employability skills prior to tertiary study. It would be interesting to see how their perceptions change as they progress through their studies and as they develop from graduates into experts in their field. It would also be pertinent to investigate their responses to these questions and compare them to whether they have been previously employed or whether they were employed by family (as can be common in agriculture) or externally.

Further research should also be undertaken to discover the perspectives of post-graduate students and employers and see if the tensions and perceptions align with those discussed here. It seems probable that post-graduate students are less likely to be completing a degree to then return to the family farm, as seems to be the case with a proportion of undergraduates. In addition to this, research on the potential role of ePortfolios in providing evidence for graduate competency in a world where GenAI is ubiquitous would offer further insight into future-proofing authentic assessment in the discipline.

Conclusion

The study found a tension between the taught employability skills of agriculture/agribusiness students and what industry desire. It may be that industry does not recognise the employability skills that students possess, that students do not adequately articulate their skills, or that students have an inflated sense of their own skills while industry is assessing them at a realistic level. Implementing ePortfolios as an assessment and reflection tool across tertiary agriculture and agribusiness programs could aid in addressing this issue. By encouraging regular reflection and tracking of progress towards professional identity goals, ePortfolios can showcase students' transferrable skills and learning journey. These artefacts should provide evidence of skill development and highlight the learning process, linking to the skill priorities of the student's desired future career. In order to effectively display employability skills and meet employer expectations, the artefacts produced should be aligned with learning and professional outcomes and designed to serve as suitable entries in the ePortfolio. By adopting this approach, multidisciplinary students can showcase their diverse learning journeys, enhancing their ability to demonstrate their suitability to potential employers.

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