Exploring academic staff perceptions of employability-based learning in STEM.

Exploring academic staff perceptions of employability-based learning in undergraduate Science and Engineering degrees

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Abstract

This thesis reports the results of research that explored academic staff perceptions of employability-based learning. It highlights six key themes that emerged from the research, with a specific focus on the challenges to embedding employability, and an identification of associated opportunities. This research is significant because there is substantial evidence to suggest embedded employability-based learning initiatives are not necessarily having significant impact (e.g. Bennett, Richardson & MacKinnon, 2016), despite the volume of work being done to develop frameworks and models of employability that attempt to align graduates' skills with employers' needs (e.g. Pegg, Waldock, Hendy-Isaac & Lawton, 2012).

The six themes identified range in scope from broad perspectives about the changing purpose of university education, through to local level concerns about staff willingness and efficacy with respect to embedding employability-based learning. Specifically, the research identified factors that impact academic staff attitude to employability-based learning including the effect of the disparity between perceived expectations on individual academics compared with university-level initiatives; implications arising from unrealistic staff workloads; and the effect of student attitude towards employability on staff willingness to innovate and introduce embedded employability-based learning. The research also revealed academic staff perceptions of the opportunities to address employability, including the potential to leverage academic-industry connections and academic-student connections to enhance student- industry connections.

The practical output from this research is a holistic model that presents key areas for consideration for university leaders and curriculum designers to help assess a university's strategic readiness to embed employability. The model emphasises practical action at each of the hierarchical tiers of the University, and it acknowledges the extent to which action in one leadership tier will impact the potential for action in each of the subsequent tiers. The model focuses on pragmatic considerations to overcome the challenges to embedding employability identified by those on the 'front line' of teaching – academic staff, and, by identifying potential actions, it provides insight about potential opportunities.

The research was conducted as a qualitative study, based on twelve semi-structured interviews with academic staff who all had some interest in or experience teaching employability or experiential learning (authentic learning activity and assessment).

Statement of Originality

This work has not previously been submitted for a degree or diploma in any university. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

Signed:

Gayle Brent
3 April, 2019

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List of Abbreviations

CAP	Career / Academic / Personal (framework for employability)
CV	Curriculum Vitae
EBL	Employability-Based Learning
FYA	Foundation for Young Australians
GOS	Graduate Outcomes Survey
HE	Higher Education
HEA	Higher Education Academy
HEI	Higher Education Institutions
KPI	Key Performance Indicator
L&T	Learning and Teaching
PLUS	Professional Learning for University Students (program in the Griffith Sciences)
PPES	Professional Practice and Employability (stream)
PwC	PricewaterhouseCoopers
SEC	Student Experience of Course
SET	Student Experience of Teaching
STEM	Science, Technology, Maths and Engineering
WIL	Work Integrated Learning

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Chapter 1: Introduction

1.1 Higher Education and work ready graduates

The notion that Higher Education Institutions (HEIs) have a significant role and responsibility to prepare graduates to be 'work ready' is not new. This topic has been explored thoroughly by many scholars and references to 'work readiness' can be found throughout the literature (e.g. Wharton & Horrocks, 2015; Cavanagh, Burston, Southcombe & Bartram, 2015; van Roojen, 2011). What has changed recently, however, is an emerging dialogue that focuses on the role of HEIs to prepare graduates to be 'job capable', with some, such as Alan Finkel (the current Australian Chief Scientist) claiming the 'work ready' tag could potentially misrepresent the goals of higher education (2016). He states that "universities have never turned out graduates who are 'job ready' – robots ready to slot into the workplace" (para. 17). Instead, he stresses the value proposition of universities is to ensure graduates are 'job capable' – a concept that has a far better fit with the work of many scholars in the field. Mason, Williams and Cranmer (2009) acknowledge that 'employability' is often seen as 'work readiness' from the employer perspective, but they, like Finkel, make the distinction that the broader concept of employability is one that is linked to longer term career prospects. Jackson (2014) references Lauder's work and comments on the crucial need to overcome an outdated notion of employability that presents graduates as being ready to 'plug in and play'. She highlights that employers have unrealistic expectations if they assume graduates will be ready to immediately apply their skills in a range of contexts, and she further explores this concept with respect to the differentiation between a *capability* (developed at university) and *competence* (demonstrated in the workplace).

Caballero and Walker (2010) use the terminology 'work readiness' in their paper *Work readiness in graduate recruitment and selection.* While the wording here is at odds with the 'job capable' notion suggested above, the concepts explored by Caballero and Walker (2010) align with both Finkel's (2016) and Jackson's (2014) perspectives. Caballero and Walker (2010) suggest that graduates are often selected for their "perceived general potential rather than for a specific role" (p. 15). Hinchcliffe and Jolly (2011) also make this point. They contend that employers are restricted to assessing potential, rather than performance as the latter only becomes apparent after a graduate has been employed. Yorke and Knight (2007) interpret employability as a graduate's suitability for employment, rather than their

ability to get a job. These concepts are particularly relevant for students graduating from what are often referred to as 'generalist' degrees (such as the Bachelor of Science) where the career path is not clearly defined.

Grey (2018) creates a distinction between 'recruitablility' and 'employability'. He broadly groups the activities delivered by the careers service in the 'recruitability' bracket, and he is adamant in his belief that it is unreasonable to expect a central unit of this type to have a substantial positive impact on graduate outcomes without substantial changes to the curriculum. Instead, he highlights the need for course leaders (course/subject convenors) to "have a realistic view of where the accountability lies for the outcomes of their graduates" (para. 23). This perspective is an interesting one in the context of the current research and has significant relevance to the overview of employability in higher education. Grey (2018) suggests that academic staff should have key performance objectives linked to graduate outcomes. He also makes the point that they should therefore have career development opportunities linked to these objectives. This concept is strongly linked to the fundamental question addressed in this research, which explored factors that impact staff perceptions of embedded employability-based learning (either positive or negative) including challenges, barriers and opportunities. The link between staff perception of employability and their approach (willingness or otherwise) to embed and integrate employability in a meaningful way was also explored.

1.2 STEM graduates and the future of work

While employability of graduates throughout the Higher Education is a relevant to the topic at hand, the current research focused specifically on employability in two undergraduate Science, Technology, Maths and Engineering (STEM) degrees (Engineering and Science) at the chosen university. The many factors that impact students and graduates in these degrees provide some insight about the context in which the research has been conducted.

The first is the notion of the "future of work" (Foundation for Young Australians (FYA), 2016) – a well-documented, and increasingly accepted phrase that alludes to, and encompasses, the anticipated changes in the labour market which will result from increased automation, globalisation and digitisation. The emphasis here is the emergence of non-traditional job opportunities, and non-linear career paths, with the expectation that today's graduates may experience up to 17 different careers within their working life (FYA, 2017). There is also

significant emphasis on the need for graduates to develop skills that are 'portable'. In the sixth instalment of the "New Work Order" report series, *Preparing young people for the new work reality*, for example, the Foundation of Young Australians (2018) identify an urgent need to "equip [young people] with enterprise skills that are portable to many jobs in their future which are key to successful transitions" (p. 9).

The second key concept is the widely-held view that STEM graduates will have significant impact on Australia's future success and the potential for ongoing innovation (e.g. PricewaterhouseCoopers (PwC), 2015; Queensland Government Department of Education, Training and the Arts, n.d.), with an increasing number of roles expected to require STEM skills. While this may be the case (data indicates 75% of the fastest growing occupations require STEM skills (PwC, 2015)), there is a notable disconnect for employers seeking to hire STEM graduates. In a report generated by the Australian Industry Group (2014) it was revealed that the barriers to finding appropriate STEM graduates for specific roles include 'a lack of applicants with STEM skills' and 'a lack of employability skills'. This is evident in the *New Work Order* report (FYA, 2016) which explicitly states: "graduates are finding it harder to find employment and employers are reporting mismatches in the skills young people are learning and those industry require" (p. 2).

To overcome this, it could be argued that HEIs have an opportunity, if not an obligation, to adopt an approach to curricula learning that will enable students to develop and recognise their generic/transferable skills alongside their discipline-specific skills, knowledge and technical competencies. This can only be achieved if sufficient opportunity is established for students to reflect meaningfully on their experiences, so they can "competently and confidently articulate their skills, abilities and capabilities (i.e. their employability) to demonstrate their potential for success in graduate employment and beyond" (Brent, Sanger & John, 2017). A 2017 report from the Foundation for Young Australians, *The new work smarts*, creates a clear and unambiguous link between STEM skills and abilities and the need for high-level employability skills. The report states that "to activate and fully utilise STEM skills effectively, enterprise skills, including problem solving, critical thinking and communication are of prime importance" (p. 15). It further states that "STEM skills alone will not be enough" (p. 15). The imperative to better address employability-based learning, and the development of STEM students' skills and capabilities in this crucial area is clear.

1.3 Significance of study

This research presents a holistic view of the challenges and opportunities for embedding employability-based learning in STEM undergraduate degrees in the Australian higher-education context from the perspective of the academic staff who are on the 'front-line' of developing and delivering employability-based learning. It is intended to stimulate further discussion and investigation about the 'big picture' factors that may influence academic staff willingness and motivation to action any given university's strategic plan/s to facilitate genuine, employability-based learning activities, with the longer-term view to positively impact graduate outcomes.

The focus on employability is currently pervasive in the higher education sector, both within Australia and internationally. A scan of university websites and/or their academic plans and strategic agendas will immediately reveal the extent to which educators and university leaders are attempting to develop strategies to effectively address the employability skill gap. Frameworks, definitions and case studies highlighting effective practice abound in the literature, and much has already been done to design and implement employability-based learning initiatives in both curricular and co-curricular contexts (e.g. Kinash et al., 2015). Jackson (2014) comments on the "lack of a holistic approach to understanding the factors which may influence undergraduate competence in employability skills" (p. 223) and she further comments on the potential for curricula and pedagogy to be adjusted to achieve this.

There is also strong evidence from employers, industry and graduates that there is still significant work to be done for employability-based learning to have real impact (Bennett et al., 2016). Cavanagh et al. (2015) acknowledge this ongoing area for potential pedagogical development and improvement and they comment on the "need for university educators and curriculum designers to proactively intervene and develop effective learning activities… and to regularly monitor and review progression towards desired employability from entry to exit" (p. 278).

Given the identification of these gaps, the need for a holistic view, and the acknowledgment of the role of both academic staff and curriculum designers in the ongoing pursuit to design and implement effective strategies for employability-based learning, the specific purpose of

this research was to explore academic staff perceptions of the overarching, strategic barriers and opportunities for embedding employability-based learning.

This research aimed to impact the way in which universities, both within Australia and internationally, approach the challenge to developing a curricular approach to employability. It aligned with the challenge highlighted by Jackson (2014) above in that it focused on a holistic approach to address the barriers and capitalise on the opportunities to effectively embed employability-based learning. This work addresses a gap in the literature by building upon existing models for employability to focus on specific elements of an institutional level approach to implementing employability-based initiatives that are fundamentally important to academic staff.

The research acknowledged the crucial role of academic staff in the development and delivery of curricular employability initiatives, and, from that perspective, it encompassed broad factors that influence academic staff attitude towards employability-based learning through to specific considerations for individual academics that may influence their willingness and/or ability to implement employability strategies at the local level.

1.4 Research Questions

This research investigated current perceptions of employability-based learning within the Sciences Group (Faculty) at a specific university in South-East Queensland, Australia. There was a particular focus on the factors that impact academic staff perceptions of employability and the resultant challenges or opportunities to embed employability in the curriculum. A range of factors that could potentially impact staff opinion with respect to employability were identified by the researcher, based on the literature review, and the research was designed to determine the extent to which these perceptions are 'real' in the minds of academic staff. The five specific research questions developed to explore the overarching research problem are as follows:

1. Are there potential tensions arising from those who believe employability-based learning will dilute the 'true pursuit of knowledge' within higher education and/or a perceived disconnect between discipline specific content and employability content?

2. How does perceived support at various institutional levels impact staff attitude to employability-based learning?
3. What is the impact of the requirement for employability-based learning activity and assessment to be developed and delivered by 'non-expert' academic staff?
4. To what extent do academic staff perceive student attitudes towards embedded employability-based learning impacts its effective delivery?
5. What role do employers and industry have in developing students' employability in the university environment?

While not specifically framed as a research question, there was also a focus in the research to explore precisely what academic staff perceive the term 'employability' to mean. The imperative to develop a shared understanding of employability within any given context is explored in the literature review in Chapter 2, with specific reference to four frameworks that highlight that employability is complex and multidimensional.

1.5 Background and situational context

Throughout the higher education sector much is being done to attempt to address the mismatch between employer's expectations and graduate performance in the workplace (Robinson, 2009). This flurry of activity includes the development of extra-curricular employability achievement programs, frameworks to help academics and curriculum designers understand and interpret employability, expanded priorities for careers and employment departments, and the introduction of specific programs to address certain aspects of employability (e.g. entrepreneurial activity).

The University in this research is no exception to the rule in this regard, and it therefore follows that much is being done at the University to bridge the university/graduate, industry/employer gaps with respect to employability. A variety of initiatives designed to reinvigorate the University's approach to employability have been implemented both within the curriculum and through diverse extra-curricular opportunities.

This study took place within one faculty of the University, known as a 'Group'. The Sciences Group (comprising the School of Engineering and Built Environment, the School of Environment and Science, and the School of Information and Communication Technology) has a local-level employability initiative known as the Professional Learning for University

Students (PLUS) program. PLUS comprises both curricular and extra-curricular approaches, and it evidences the Sciences Group's overt commitment to developing students' employability. PLUS is briefly outlined in Chapter 2.

Chapter 2: Literature Review

The purpose of this chapter is to present literature relevant to the research questions posed in Chapter 1. The chapter begins with an overview of the dimensions of employability, with particular focus on four relevant employability frameworks. This includes a review of the Higher Education Academy model (Figure 4) that also provided the conceptual framework for this research. The literature review explores the current employability 'climate' in the Australian context, including the impact current measures of success may have on staff and student perception of employability, and it provides an overview of the changing nature of higher education, and the impact this has had on staff workload.

2.1 Dimensions of employability

'Employability' as a concept is not new to higher education institutions and in that context scholars have proposed many definitions of the term. Modern shifts and changes in the global labour market have impacted some of the more recent discussions of employability with many interpretations now placing an increased emphasis on a graduate's ability to 'create or sustain work' (Kinash et al., 2015), to 'adapt to jobs and technologies that do not yet exist' (Queensland Government Department of Education Training and the Arts, n.d) and to be adaptable to the 'learning age or learning society' (Fallows & Waynen, 2000). While the wording and emphasis does change from scholar to scholar, there is general consensus that employability is multifaceted and most definitions include a reference to some or all of the following core dimensions:

- discipline knowledge and technical skills;
- personal qualities or attributes;
- self-efficacy;
- metacognition, or the ability to reflect;
- the ability to secure work (career management); and
- (in some cases) the capacity to contribute positively to community (e.g. Yorke & Knight, 2003; Hillage & Pollard, 1998).

These dimensions are represented in a diverse range of employability frameworks and models that have been developed by scholars in an attempt to 'unpack' employability, and to align the concept with the practice and objectives of universities. A comprehensive review of all of these models is not possible in the scope of this thesis, however, four have been chosen for review as they encapsulate the dimensions noted above.

2.2 Employability Frameworks

The CareerEDGE (**E**xperience, **D**egree, **G**eneric Skills and **E**motional Intelligence) model (Figure 1) proposed by Dacre Pool and Sewell (2007) was intentionally designed to be understood and interpreted by non-experts which includes some academic staff. This model emphasises the overlapping domains of employability and draws explicit attention to the potential for students who actively engage in reflection and evaluation of their experiences to develop high levels of self-efficacy, self-confidence and self-esteem. This model is useful for academic staff because it conceptualises the need for employability to be embedded so students have sufficient motivation and opportunity to engage in reflective practice.

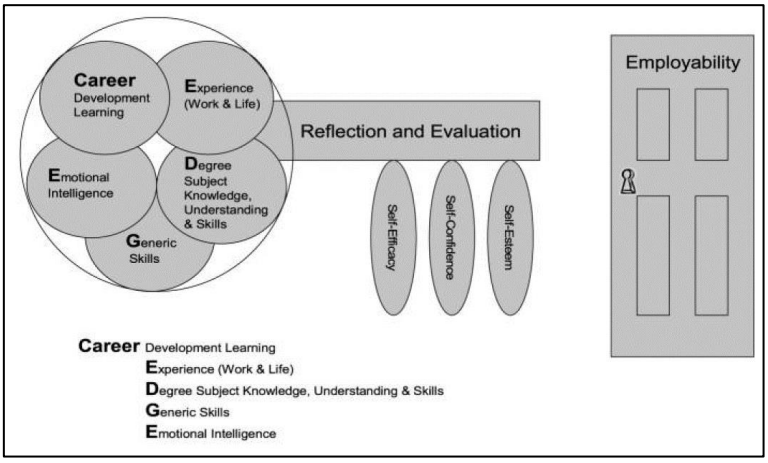

Figure 1: CareerEDGE - the key to employability (Dacre Pool and Sewell, 2007)

The Bennett et al. (2016) framework for developing employability (Figure 2) is a similarly practical model that emphasises the cyclical, intersected and recurring themes for employability as follows:

- develop skills and knowledge;
- develop self;
- develop career awareness;
- interact with others; and
- navigate the world of work.

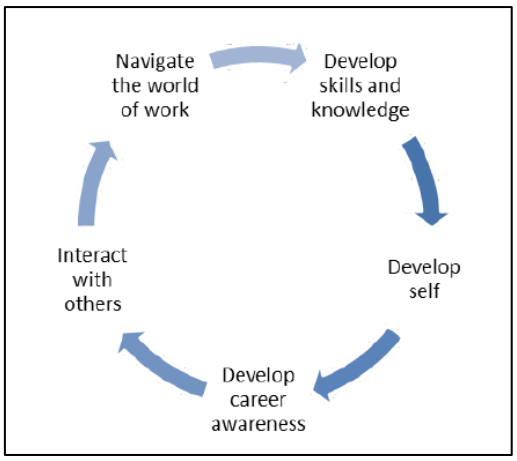

Figure 2: Framework for embedding employability (Bennett et al., 2016)

The inclusion of the theme 'navigate the world of work' in this model, in addition to 'develop career awareness', is noteworthy given evidence that suggests STEM graduates will apply their skills across diverse contexts and situations, not just in 'traditional' STEM roles (PwC, 2015). Prinsley and Baranyai (2015), writing on behalf of the Office of the Chief Scientist, stress the importance of transferable skills to employers of STEM graduates. They note the lack of alignment between the skills valued by employers and students' understanding and knowledge of these, highlighting the need for these skills to be explicitly addressed within the curriculum – an important consideration for curriculum designers, including academic staff.

The **C**areer, **A**cademic, **P**ersonal (CAP) framework was presented by Brent, John and Sanger in 2017 as a framework to help all stakeholders interpret employability (Figure 3). The CAP model builds on previous frameworks for employability in line with Pegg et al.'s (2012) assertion that individual institutions should consider a customised approach to their students' employability needs and to the associated strategies for delivery within the curriculum. That is, a 'one size fits all' model for the pedagogical delivery of employability is not necessarily the best approach.

Particular aspects of the CAP model that are notable include the depiction of the three core dimensions of employability - career management, academic skills and knowledge, and personal attributes - as equally vital and important. Brent et al. (2017) emphasise the need for employability-based learning (EBL) to be contextualised by the discipline, and comment on the potential for the CAP model to help academics understand how employability can be

successfully addressed within the curriculum. They include practical suggestions for the ways in which employability may be able to be embedded in the key areas of industry-based learning, career learning and personal learning.

The CAP model is paired with the Professional Learning for University Students (PLUS) framework, presented in Appendix 1, to create an approach to employability that is aligned with the student life-cycle. The combined CAP/PLUS model emphasises the need to scaffold complex employability skills and concepts, and, at a practical level, it explicitly presents a series of tasks that can be readily adapted and integrated into specific subjects/courses, within the context of the disciplines, whilst maintaining a scaffolded, program-level perspective. This model is useful for academic staff, particularly those who may have limited experience of developing context-specific employability-based learning tasks and assessments, because it provides something of a 'toolkit' aligned to the student life-cycle.

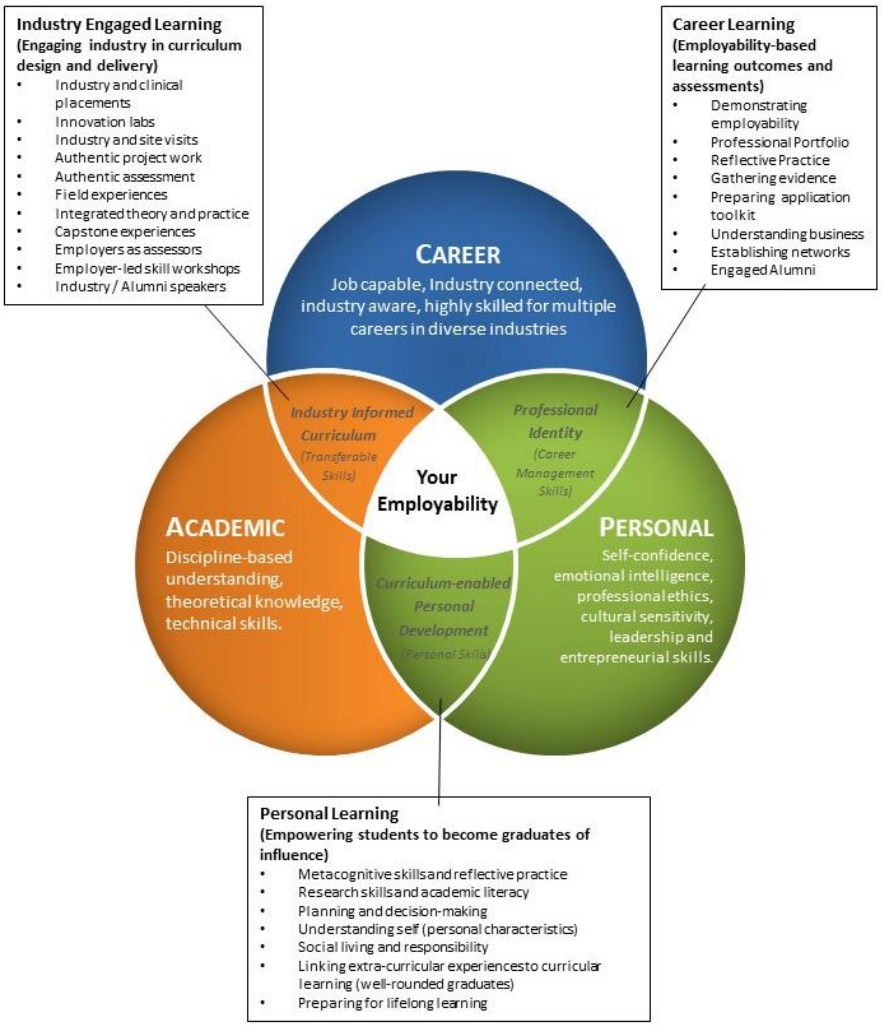

Figure 3: Career Management, Academic Skills, Personal Attributes (CAP) model for embedding employability (Brent et al., 2017)

The final framework in this review was developed by the Higher Education Academy (HEA) in the United Kingdom (Figure 4). It is particularly relevant to the current study because it was specifically designed to allow tertiary educators to "develop a more consistent, comprehensive and cohesive approach to employability" (Norton, 2016, p.2). This framework places embedding employability at the centre, and suggests ten core areas of focus that are integral for graduate employability, and therefore essential for curriculum designers to consider. The core strategies, while not explicitly categorised in this model, do reflect the core dimensions identified as key to employability: discipline skills, personal attributes, career management. The model is intended to "empower staff to truly own their approach [to EBL]" (Norton, 2016, p.4), thus it represents more than a mere interpretation of what employability means, and instead proposes a framework to guide and empower staff to effect change. This is a fundamentally important observation, as it extends thinking about employability beyond description, and shifts it to the realm of action. The intent of the current research is likewise to inspire action, by first identifying factors that may inhibit or entirely prevent an active attempt to develop a curricular approach to employability. For this reason, the HEA model provides a conceptual framework for the research.

Figure 4: The HEA Framework for embedding employability (Norton, 2016)

2.3 The Higher Education Academy model of employability as a conceptual framework for this research

The HEA Model for embedding employability outlines a cyclical process for Higher Education educators to consider to reflect on current employability practice, and to facilitate and support discussion to drive change. It suggests a four stage process to apply the framework in practice at an institutional level: stage 1 – defining employability; stage 2 – auditing and mapping; stage 3 – prioritising action; stage 4 – measuring impact. A review of the cyclical process depicted in the HEA framework guided the development of this research in three key ways.

First, the research sought to define how employability is interpreted by academics at the university where this research was conducted, aligning with the HEA Stage 1 – defining employability.

Second, the research sought to establish the approach academics are currently taking towards embedding employability in their specific course or program. While this was necessarily a focused approach, given the small number of interview participants and the limited scope of looking at only two discipline areas within the University, it nonetheless aligned with a priority area for implementing employability suggested by the HEA in the model. That is, that the auditing and mapping phase should consider "provision and support, considering all policies, practices and processes, against the definition agreed at stage 1" (Advance HE, 2016).

Third, the HEA model emphasises 'prioritising action' in its third phase. This is described as prioritising action to address gaps, share best practice and agree on measurable outcomes within practice and processes. The notion of 'action' and 'addressing gaps' inspired this research, and likewise has contributed to the way in which data is presented and discussed later in this thesis. The overarching theme of the research was to explore staff perceptions about embedding employability (challenges, barriers and opportunities). The fundamental premise was that once challenges and opportunities are known, appropriate action can be taken to overcome challenges and capitalise on opportunity. Thus, a conceptual model that emphasises 'action' is appropriate for this research.

The final phase in the HEA model 'measuring impact' was not overtly explored in this research, however, the results of the research, analysis and discussion of the data does have the potential to impact the ways in which success might be measured in the future, and this phase is therefore still highly relevant and may present an opportunity for future research.

A final point with respect to the HEA framework as a conceptual model is that it acknowledges the diverse audiences who may apply the framework in the pursuit of embedding employability, and it emphasises the key themes of inclusivity, collaboration and engagement. 'Inclusivity' in the model represents the notion that all students should have equitable access to opportunities to enhance their employability. 'Collaboration' refers to the need for collective responsibility from all stakeholders. 'Engagement' highlights the fundamental need to establish a shared understanding of employability with language that resonates for all stakeholders to ensure proactive engagement from all stakeholders. These three concepts were a feature of the research, both in the way it was constructed, and in the way it is reported in this thesis.

2.4 Student perceptions of and approach to employability

University students make conscious and informed decisions to attend university with the expectation they will improve their employment prospects when they attain a university degree. Cox and King (2006) emphasise that students' motivation to attend university is intrinsically linked to their expectation of higher earning potential when they complete their degree. They observe that students forego potential income while they are studying plus they incur the costs of study. They rationalise that students must therefore be motivated to attend university to enhance their employment prospects.

Donald, Ashleigh and Baruch (2018) comment that students make a series of decisions throughout their study – weighing up the perceived costs (e.g. time taken, accrued debt) against the perceived benefits (e.g. potential for higher income, status etc.) and they emphasise that students strive to maintain a balance to increase potential future gains whilst protecting against the loss of existing resources, in line with Cox and King's (2006) findings. Given the substantial factors at play for students, and the potential risk they take to attend university, it follows that universities have a responsibility to ensure they are

providing a service (education, experiences, support) for students that will ultimately result in enhanced employment prospects.

Donald et al. (2018) expand on the objective view of 'resource theory' proposed by Hobfoll to explore the subjective implications of student perceptions of employability. That is, students who perceive themselves to be more employable are likely to take proactive steps to enhance their employability (Clarke, 2009) and there is potential for students' perception of their employability to be undermined through diminished or non-existent resources (Vanhercke et al., 2015). It follows therefore, that students will welcome opportunities to engage in employability-based learning (curricular) or to seek out extra-curricular opportunities to enhance their employability.

This notion is at odds with Rich (2016) who suggests that the "awkward reality and the drudgery of needing to secure employment slides down the list of priorities when there is studying to be done, life to be managed and the pleasures of student life to be experienced" (p.16). He remarks further that career management (and by extension employability) is something few students engage with before their final year of University. Wingate (2006) also recognises the inherent challenge of extra-curricular or 'bolt-on' strategies and comments that workshops offered in this way are not "attended by the students who need them the most but by high achieving students who want to enhance their performance further" (p.458). Her study specifically focuses on *study* skills programs however, many of the challenges and limitations she highlights are equally applicable to extra-curricular career development programs.

Rich (2016) also explores the impact of a diverse student population on developing both social capital and employability. In Australia, this is a valid and important consideration given the widening-participation agenda and the increasing number of 'non-traditional' students participating in higher education. Pegg et al. (2012) acknowledge the diverse student population and observe that widening participation students, part-time students and mature age students are "less likely to participate in co-curricular and extra-curricular activities and are less likely to access careers services" (p. 18). Given the diverse population of students at many Australian universities, including significant numbers from non-traditional backgrounds, there is considerable likelihood that many of them will be impacted by competing demands on their time.

An embedded, curricular approach to employability-based learning is clearly one option to address these potential concerns, to ensure students are provided with appropriate opportunities to understand employability, to reflect on what they have achieved and identify areas for improvement (Yorke & Knight, 2006). This can only be addressed by ensuring there are multiple overt and explicit opportunities for employability throughout the students' degree experience, however, Yorke (2004) comments that while curricular design may be intended to enhance graduate employability, it does not necessarily follow that students will recognise and understand this either at the time or within the short-term.

This is relevant in the context of academic staff perspectives of employability-based learning because it highlights a missing 'metric' in the employability discourse that will allow staff and students to identify the ways in which students have achieved success at the time of learning. Yorke and Knight (2007) emphasise the need to be explicit with regard to students' achievements. They comment that "both staff and students [must] know how achievements arising from [employability-based learning] can be represented effectively to employers" (p. 159).

This is somewhat at odds with the predominant measure of success currently in place within Australia, the Graduate Outcomes Survey (GOS). The GOS establishes whether or not a graduate has secured employment at point in time four to six months post-graduation. The usefulness of this type of reporting is widely questioned by scholars (e.g. Bridgstock, 2009; Jackson & Bridgstock, 2018; Bennett et al., 2016; Mason et al., 2009), and it is this criticism that highlights the fundamental difference between employment (at a given point in time), potential employment (at a future point in time), and perceived employability (point in time notwithstanding). The potential for embedded EBL to impact 'perceived employability' from the perspective of both staff and students aligns with the notion of being 'job capable'. The extent to which academic staff can create transparent and overt opportunities for students to recognise the development of their skills in this context is crucial.

2.5 The disconnect between discipline-based content and employability

One of the challenges explored in this research was the impact of the notable 'disconnect' between the core STEM discipline and the requirement to embed what are, sometimes controversially, referred to as 'soft' skills (e.g. Remedios, 2012). 'Soft' is a relative term that can be misleading given how difficult it can be for students to recognise, articulate and transfer these skills. Remedios (2012) also notes that 'soft skills' can be difficult to quantify because what constitutes a 'soft' skill in one role or job context, may be a considered a hard skill in another. Use of the term 'soft' and reference to 'soft skills' as being 'nice to have' (Remedios, 2012) helps establish why students may have misconceptions about the relevance of developing these skills within the context of a Science or Engineering degree.

Preliminary data from one final year Bachelor of Science course, for example, indicated that some students resented the inclusion of employability-based assessments at the cost of 'more Science…especially in final year' (Brent, 2016). These students reported that they felt the course was 'too easy' for final-year Science and that it was 'more like something first year students should do' (Brent, 2016). Speight, Lackovic and Cooker (2013) also refer to this. They report the findings of their study and comment that "the majority of staff and students felt that employability initiatives…should be 'bolt-on' and additional to the mainstream curriculum, thus leaving disciplinary boundaries intact" (p. 120). McCash (2008) alludes to this when he comments that student engagement with career learning (anticipating their future) can strengthen their commitment to the main discipline (content) – thus he similarly observes the disconnect between the two, whilst simultaneously suggesting the two should be integrated.

The need to be explicit and overt with respect to the skills students are learning is common practice in tertiary education design, evidenced, for example, by the level of detail included in course profiles and the inclusion of course and program level learning outcomes), yet there are multiple references in the literature to indicate that this level of transparency is not currently being achieved with respect to employability. Pegg et al. (2012), for example, highlight the mismatch between the skills academics think they are teaching and student understanding of what they are learning. Burke, Jones and Doherty (2011) likewise acknowledge that students do not necessarily realise they are developing employability skills. The 2016 report by Bennett and colleagues also emphasises that the "relevance of

coursework to the real world of work is often not realised by, or made clear to students" (p. 13). This lack of transparency arguably prolongs the idea that there is a disconnect between employability learning and discipline learning. That is, if students do not realise they are learning employability skills in context, an inherent 'negativity' about employability can potentially persist. If curriculum designers and teaching academics are able to achieve greater transparency by demonstrating and making the connection between discipline knowledge and employability capabilities overt and explicit, there may be potential for the perceived 'disconnect' to be overcome.

Alan Finkel (2019), the current Australian Chief Scientist, applies a 'T-shaped' analogy to describe the relationship between transferable and discipline skills where the "vertical pole of the T represents deep discipline-specific knowledge and the horizontal bar of the T represents 21st Century skills" (para. 13). His analogy emphasises that the development of employability skills in context is vital.

Holmes' (2001) interpretation of employability from the perspective of graduate identity is an ideal way to frame this. He comments that "it is by no means clear that employers should want skills, *per se*; rather they want the graduates they recruit and employ to perform in desirable ways – competently and effectively" (p. 112). He further explores the relationship between tasks students complete at university and their future work, and observes that these tasks should be considered 'as rehearsal of' or 'having a go at' or 'an example of' workplace practices as opposed to the completion of a task resulting in the attainment of a specific skill.

Holmes' (2001) assertions about what the relationship between learning activity and assessment at university should be and the application of what has been learnt by the graduate in the workplace is relevant in the context of this study. This research therefore cultivates an informed understanding of what 'employability' means to teaching academics within the context of their discipline.

2.6 Why some academics are 'non-experts' in employability

One potential challenge to the implementation of curriculum-based, embedded employability strategies is a potential lack of understanding or consensus of what is actually meant by the term 'employability' by those in a position to address employability within the

curriculum. This is evidenced by the diverse definitions provided by scholars. Pegg et al. (2012) have conceptualised this notion. They explain that despite the volume of work being done to define and explain it, employability is a concept that is not easily understood or interpreted by non-expert audiences which often include academic staff and students (Rich, 2016; Dacre Pool & Sewell, 2007). While academic staff are experts in their specific field, and while they are in prime position to embed employability-based learning, given their frequent interaction with students and their role in designing course content and assessment, Rich (2016) and Rogers et al. (2016) both suggest that it does not necessarily follow that they have either the skills or the willingness to do so.

Bennett and colleagues (2016) explain that there are three definable categories of academic with respect to their approach to employabillity:

1. Educators who agree they have a role in the development of employability, and who have the skills and resources to undertake this task;
2. Educators who agree they have a role in the development of employability, but who need some assistance to engage students and others; and
3. Educators who do not agree they have a role in the development of employability and are unlikely to engage unless required to (p. 3).

The second of the Bennett et al. (2016) categories is particularly relevant as it emphasises that there is a group of willing academics who are considered 'non-expert' with respect to how they might approach employability-based learning. Bennett and colleagues' (2016) observations are reflected in the *Academic Advising for Employability Toolkit* developed by Rogers et al. (2016). Rogers and colleagues (2016) comment that the academic advisors in their study expressed a desire to help students with their career goals, but that they did not feel confident advising about roles outside academia because they "are not experts" (p. 8). They also observed that "academic advisers who…agree they are well placed to offer employability support, lack confidence in their ability to give effective guidance" (p. 9).

An alternative conceptualisation of the terminology 'non-expert' could emerge from a misunderstanding of what constitutes employability based-learning. This type of misconception could, in turn, contribute to a general malaise about embedding employability in the curriculum. In this context, academic staff may in fact have the requisite

knowledge of what it means to be employable within their specific discipline, but they may also hold a narrow or limited view of what constitutes employability-based learning that inhibits their willingness to embed employability. Speight et al. (2013), for example, comment that one traditional or commonly understood definition of employability is a narrow one that reduces its value to merely gaining work – a concept that was explored earlier in this research in the context of the newly-coined label 'recruitability' (Grey, 2018). If academic staff do interpret employability in this limited way, they may consider themselves to be 'non-expert' because they may not have the required knowledge to guide students in this specific aspect of their career development.

Speight et al. (2013) further assert that a narrow interpretation of employability can cause unnecessary anxiety for stakeholders who have concerns that the long-term goals of HE to promote a "pursuit of truth" (Yorke & Knight, 2007, p. 158) might be compromised for what Jameson, Strudwick and Bond-Taylor (2012) describe as "tangible, short-term, business aims" (p. 27). Jameson and colleagues (2012) explore these tensions in relation to the involvement of work organisations in the curriculum. Their ideas suggest that some academics may be uncomfortable with the notion of embedded EBL because they believe it detracts from the core aim of delivering disciplinary-specific content or it may presuppose that "employability skills somehow encroach on 'traditional academic values'" (Baker & Henson, 2010, p.64). This is one of the key challenges identified for an embedded approach to EBL in undergraduate STEM programs.

2.6.1 The changing purpose of university and the impact on staff workload

There is substantial commentary in relevant literature about the increasing demands on academics to meet or exceed the performance expectations of HEIs (e.g. Houston, Meyer, & Paewai, 2006; Kenny, 2018). Many scholars note the changing function of HEIs as a result of the new 'knowledge society' (e.g. Degn, 2018), and they highlight the pressures on academic staff that have resulted from the requirement for them to produce substantial research outputs, whilst simultaneously managing teaching expectations, including associated administrative work (Kenny, 2018). Kenny (2008) highlights the impact of increased participation in higher education in Australia on staff-student ratios, and Kenny,

Fluck and Jetson (2012) emphasise the impact of 'shrinking funds' and the associated normalisation of work overload within academia.

The notion of 'work overload' is particularly relevant in higher education institutions when it is taken in the context that many academics have an inherent and genuine dedication to their work (Kenny, 2018). This translates to an emerging situation where staff are 'burnt-out' with unmanageable workloads and yet they continue to adapt and attempt to deliver outcomes in line with university expectations (Anderson, 2006). Ryan (2012) referenced a withdrawal into survival mode or 'zombiefication' whereby academics feel disempowered and simply do what is required to get through, and both Ryan (2012) and Kenny (2018) advocate for restoring academic ownership over managerial decisions that directly impact their workload.

Ryan's (2012) 'zombie' metaphor, featured in her paper *Academic Zombies: a failure of resistance or a means of survival,* is figuratively applied to explain that universities are increasingly subjecting academic staff to multiple performance indicators, and endless audits and evaluations. She further highlights that increasing student numbers and increasing diversification of student cohorts have resulted in increased demand on academics, creating unrealistic workloads (Ryan, 2012).

The diverse factors that contribute to unrealistic workloads for staff are briefly highlighted above. However, one factor that significantly contributes to an unrealistic workload is the requirement for academic staff to provide substantial feedback on students' work. There is an undeniable relationship between assessment, feedback and students' ongoing development in both the educational and professional practice setting (Giles, Gilbert & MCNeill, 2014). Giles et al. (2014) note that written feedback is crucial in higher education, and Bruno and Santos (2010) highlight the pivotal role of effective feedback in learner development. This latter point is highly relevant in the context of the impact on academic staff workload and accentuates the idea that *effective* feedback is vital for it to have a positive impact on student learning and development.

Chalmers, Mowat and Chapman (2018) categorically acknowledge the importance of providing "rich, directed feedback which is as personalised as possible" (p. 37) and they comment that from the staff perspective there is a need to strike a balance between what the tutor can 'afford to give', in terms of time and energy, and what the student really wants or needs. This view of marking, which emphasises the intimate relationship between constructive, personalised feedback that is appropriate for each individual student (and teacher) is relevant in the context of marking employability assessments, which, by their very nature are highly personalised and individual to the student. The risk that staff might side-step employability-based assessments in order to side-step the need to provide lengthy comments and feedbacks is very real, particularly in light of Boud and Molloy's (2013) observation that marking could potentially become an 'unpleasant side effect of teaching'.

2.6.2 Effective leadership in higher education

Purposeful leadership, and leadership that helps all employees connect with the fundamental purpose of the organisation, is vital for success (Lauritsen, 2018). In the higher education sector, the elements that constitute purposeful leadership are unique, "given the strength of the university system lies in the independent, thought, creativity and autonomy of the people who work in them" (Spendlove, 2007, p. 407). Arguably, this is especially true in the current higher education environment where there are shifting perceptions of the role of universities and where the requirement for innovation and change is rapidly increasing in light of those shifting priorities (for example, with respect to employability, graduate outcomes and the ways in which higher education might address these issues). Middlehurst's (1993) notion of a leadership style that must allow for academic freedom, autonomy, democratic participation and diversity of academic interests provides excellent insight into the need to allow this type of collaborative and collegial approach to leadership to exist. His ideas suggest there is a fundamental need for creative, independent thinkers who can contribute the achievement of the strategic goals of the organisation.

This is further explored by Bryman (2007) who conducted a comprehensive literature review of leadership practices in higher education. His analysis of the literature aligns with Middlehurst's (1993) views, with emphasis on the need to involve academic staff in decisions that impact them, and, relevant to this, to allow them to discuss issues of concern.

Bryman (2007) likewise emphasised the need for autonomy – commenting that effective leadership in higher education allows academic staff to work in an "untrammelled and unconfined way" (p. 700). These studies highlight that effective leadership within higher education, where those being led are themselves are thought leaders, is dependent, in part, on recognising and respecting the unique skill-sets and abilities of academic staff and allowing them personal and academic freedom. Allowing for that autonomy, however, should not compromise top-down communication from university leaders to front-line academic staff.

Bryman's (2007) study of leadership in higher education revealed that open communication about the strategic goals and direction of the departmental unit was fundamental to achieving effective leadership. While this study focused on leadership at the departmental level, Bryman's (2007) observation that 'good communication about major issues' is fundamental to research productivity, is relevant. It aligns with his findings that setting a clear sense of direction and strategic vision is vital, and it affirms the ideas of other scholars (e.g. Creswell, Wheeler, Seagren, Egly & Beyer, 1990) that the provision of information (communication) relating to the vision is crucial for successful leadership.

2.7 Disconnected stakeholders of employability

Mourshed, Farrell and Barton (2012) succinctly illustrate the current disconnect between perceptions of employability on the part of various stakeholders. They comment that "employers, education providers and youth live in parallel universes" (p. 18). Ferns (2012) stresses the need for strong partnerships between industry and higher education, and comments that these partnerships are fundamental to achieve desirable outcomes for all stakeholders. Jackson (2015) likewise highlights the potential that partnerships with industry will have a positive impact on curriculum design, with specific reference to the way student participation in Work Integrated Learning (WIL) might foster these partnerships. Cox and King (2006) extend the potential for industry involvement beyond 'traditional' WIL arrangements, and they identify three broad ways in which industry can contribute to the curriculum:

1. Collaboration in course design – with specific reference to setting the learning outcomes.
2. Collaboration in course delivery – as guest speakers or by students experiencing a placement within industry.
3. Collaboration in assessment – by provision of 'real life' scenarios and/or participating as assessors.

There are clear benefits to all three approaches, however, the greatest opportunity potentially exists by combining all three approaches (industry participation in the design of learning outcomes, course delivery and assessments) to give students the best possible chance to "emulate the way practitioners learn" (McHardy and Allan, 2000, p. 496). A combined approach would involve establishing a cooperative working relationship with industry, suggesting the need for a strategic approach to create and sustain these partnerships.

Grotkowska, Wincenciak and Gajderowicz (2015) cite a variety of scholars and describe a 'triple helix' of universities, industry and government bodies. Use of the 'triple helix' analogy implies an interdependent relationship between the three, centred on a single axis, or a common goal. While the role of government bodies is undisputedly important - consider the impact of funding initiatives and the widening participation agenda, for example - the relationship between HEIs and Government was not explicitly identified in the data collected for this study, and therefore is beyond the scope of this research. What is relevant, however, is the potential for stronger relationships between universities (students and academics) and industry (professionals) to overcome the current disparate understanding these three stakeholder groups may have about employability.

2.8 Chapter Summary

A range of key ideas have been discussed in the literature review, relevant to the current research. The concept of 'employability' was examined with specific reference to frameworks for employability that are intended to 'unpack' the concept to allow diverse audiences to interpret what is meant, and to enable them to apply it to their specific

situation. A range of challenges to embedding employability in the curriculum were also introduced, based on a review of the literature. This included the impact of student perceptions, particularly where students demonstrate an apathetic attitude to employability that may be at odds with the perceived reasons they chose to attend university. The potential for students to have an ambivalent or negative attitude about employability was explored in light of the ongoing perception that there may be a disconnect between discipline-based content and employability content, a notion that is also linked to the overarching view of the 'purpose' of university, and the tensions that may arise from a perception that university education is intended for the 'true pursuit of knowledge' as opposed to preparing graduates to be job capable and employable.

Finally, the literature review explored challenges for employability-based learning that may arise from academic staff tasked with developing and delivering employability assessments and learning activity when they are themselves potentially 'non-expert' in this space. This idea is explored in the context of increasing workload and the weight of expectation that exists for many academic staff in light of the changing purpose of university education, including the need for academic staff to create and sustain meaningful relationships with industry professionals to enhance employability in the curriculum and create opportunities for students to interact with industry.

Chapter 3: Research Design and Methodology

3.1 Grounded Theory Research Design

This research was concerned with the perceptions academic staff have about employability-based learning in undergraduate STEM programs based on their experience of teaching in those programs. The research therefore sought to explore the 'lived experience' of the academic, and to explore their responses (chosen behaviours) with respect to embedding employability-based learning. Boeije (2010) asserts that grounded theory research, an approach first described by Glaser and Strauss in their 1965 study '*Awareness of Dying*' (Boeije, 2010), offers a method for qualitative research that discovers the basic psychological processes of participants, and explores the strategies they use to navigate everyday events. While this might be true of numerous approaches to qualitative research, in grounded theory the emphasis is on the emergence of theory, based on the data collected. Allen (2010) reviews Glaser and Strauss's original 1967 text "*The Discovery of Grounded Theory*" and she emphasises their consistent use of the word 'emerge' and their assertions that in grounded theory data "should not be forced into categories from a pre-existing theory but should emerge naturally" (p. 1608). Seale (1999) likewise emphasises this as a characterising feature of grounded theory research. He expresses this as the 'grounding of theory in data' where any claims made are supported by credible evidence.

Multiple scholars (e.g. Charmaz, 2012; Boeije, 2010) refer to the use of coding and the interaction between coding, conceptual modelling and theory development as a key characteristic of grounded theory research. Charmaz (2012) comments that many qualitative researchers have adopted elements of grounded theory research, such as the use of codes, but she emphasises that the use of these strategies is often more general than is the case with grounded theory researchers. Charmaz (2012) highlights the treatment of data by grounded theory researchers to get to the 'why' questions as fundamental to analytic strategy in grounded theory, and comments that "grounded theorists compare data with data, data with codes, codes with codes, codes with categories and their finished analyses with relevant theoretical and research literatures" (p. 4).

Allen (2012) reviewed Charmaz's (2006) work "*Constructing Grounded Theory*" and comments that Charmaz's (2006) portrayal of grounded theory is an approach that encompasses "twenty-first century methodological assumptions and practices" (p. 1612) and results in an "*interpretive* [emphasis in original] portrayal of the studied world, not an exact picture of it" (Charmaz, 2006, cited in Allen, 2012, p. 1612). Charmaz (2006, cited in Allen 2012) further emphasises that grounded theory researchers construct theories based on their interactions with people, places and perspectives. This 'modern' view of grounded theory research aligns with the approach taken in this study. Three additional concepts related to grounded theory research are also relevant to the approach taken. These are explored below.

The first is related to the researcher's role as the Learning and Teaching Consultant (Curriculum/Employability) within the Sciences Group and the associated potential for her existing preconceptions and knowledge of employability to bias the research. Strauss and Corbin (1997) note that grounded theory research can guard against researcher bias because only concepts that are repeatedly present in interviews or observations, or those that are significantly absent, are justifiably able to be included as part of the theory.

The second key reason for a grounded theory research approach is related to the phenomenon under consideration – namely, academic staff perceptions of the barriers, challenges and opportunities for EBL in the context of their discipline. In grounded theory, researchers work with conceptualisations of data, rather than the actual data (Strauss & Corbin, 1997). In the context of this research this manifested as descriptions of a diverse range of activities, assessments and practices that actually represent the same phenomena (barriers, challenges, opportunities to embed EBL). Although the concepts may be different in form, during coding and analysis synergies between the responses of the participants emerged, and these synergies informed the development of a theory.

The third reason for a grounded theory research design is linked to Kvale's (1996) observation that a qualitative research approach can yield data which reaches beyond the initial responses and thoughts of the research participants. Strauss and Corbin (1997) comment that in grounded theory research the investigator enters the field with questions, and that data will be generated on these issues throughout the research. They further

advocate for analysis of each set of data as it is collected, as all "seemingly relevant issues must be incorporated into the next set of interviews and observations" (p. 6). The research process therefore guides the researcher (and by extension the research participants) to consider all the potential avenues with respect to the research topic, not only those that are known before the research begins. This is particularly relevant in this study given the researcher's existing knowledge and potential assumptions about staff perceptions of EBL.

3.2 Participants

The Bachelor of Engineering and the Bachelor of Science at the University were the two programs chosen for the focus of this research. These programs, and academic staff who teach into them, were intentionally selected for a comparative analysis given the fundamentally different approaches to embedding employability in the two programs as follows.

In the professional Bachelor of Engineering degree a range of course convenors have been tasked with embedding employability assessments. This has been at the directive of the Head of School and the Deputy Head of School (Learning and Teaching (L&T)) with significant support from the First Year Coordinator (Bachelor or Engineering) and the Learning and Teaching Consultant (Employability) (the researcher). Anecdotal evidence suggests there is still a significant disconnect between discipline-based learning and EBL within these courses, with some staff providing information to students that 'the employability task is literally not related to the rest of the course'. The impact of this type of communication is obviously detrimental to the aims of an embedded EBL strategy, and the qualitative research approach applied in this research sought to determine how staff perceptions and understanding of EBL may contribute to this type of perceived disconnect. Further, interviews with academics involved in the delivery of the Bachelor of Engineering Professional Practice and Employability (PPES) stream allowed the researcher to explore staff perceptions of EBL when they are, to a greater or lesser extent, impelled to include EBL in their subject/course.

Academic staff in the Bachelor of Science have not had the same experience as those in the Bachelor of Engineering. At this stage, there is no cohesive or structured program-wide

approach to embedding EBL. The aim of the interviews with these staff, therefore, was to determine the perceived challenges to EBL within a generalist degree that comprises multiple majors and diverse study options for students. A dedicated course to address employability, Professional Practice in the Sciences, was introduced to the program in 2016, however, it was met with substantial resistance from staff (during development of the course content) and from students (in the first iteration of the course). Qualitative research will establish how (or whether) these perceptions have shifted over time.

3.2.1 Recruitment

Academic staff who convene and teach courses in the Bachelor of Engineering and the Bachelor of Science were invited to participate in a qualitative research interview, with the intention to continue conducting interviews until key ideas were repeatedly identified and a set of themes emerged (data saturation).

A total of twenty five academic staff were emailed to invite them to participate in the survey. These staff were largely chosen 'at random' from the University phone book, however, given the researcher's role within the Sciences Group, some academics were known to her previously, and 'at random' therefore becomes a relative term. In particular, two academics who were known to be 'friendly' in terms of their support of employability-based learning initiatives were invited to participate in trial interviews to test the structure of the interview (detail below).

Following the 'test' interviews, email invitations were sent to an additional fourteen academics from the School of Engineering and Built Environment, and an additional nine academics from the School of Environment and Science (25 invitations in total, including the test interviews). The email was informal in nature and briefly outlined the purpose of the research and the expected time commitment from the academic. A copy of one such email (minor variations were made to each academic depending on the researcher's prior engagement with each individual academic) is contained in Appendix 2.

An additional ten of the 23 academics contacted responded to the email invitation – six more from the School of Engineering and Built Environment, and four from the School of Environment and Science. In total seven interviews were conducted with academics from the Engineering discipline, and five interviews were conducted with academics from a Science discipline.

Hennink, Bailey and Hutter (2011) verify that the number of participants in a qualitative study is frequently small because it is the depth of information that is of interest, so a large sample is "neither practical nor beneficial" (p. 88). They therefore describe saturation as the point at which the information collected begins to repeat itself, and they emphasise that recruitment of further participants after that point becomes redundant. In this research the emergence of key themes across a range of interviews (data saturation) was noted after approximately 10 interviews had been conducted. An additional two interviews had already been scheduled and were conducted, however it was not deemed necessary to pursue any further interviews. No further invitations were sent and there was no follow-up email to the 13 academics who did not respond to the initial email invitation to participate in the research.

3.2.2 Role of the Researcher and recruitment of participants

The researcher was conscious to invite some staff she had not worked with in any real capacity (if at all) to participate in the research, however, given the relatively small numbers of academics within both disciplines, it was inevitable that invitations were sent to staff who were known to the researcher, and to whom she was known.

The researcher's role therefore becomes a relevant factor in the recruitment of participants for the research. In this respect, while an attempt was made to create a pool of interviewees with significant variation in terms of knowledge of or exposure to existing employability initiatives, prior knowledge of some academics definitely impacted the decision to include (or not include) some academics in the invitation pool. While engagement with embedded employability-based learning was not defined as a criterion for participation prior to the recruitment process, if it had been, it is possible the group of participants who were

ultimately involved in the research may have been identified. Boeije (2010) observes that it is a valid approach for a researcher to actively seeking out individuals who are most likely to have engaged in the phenomena being investigated to generate a purposive sampling or purposeful selection. This occurred in the recruitment process for this research and the individuals who ultimately participated in the research were those who could offer the most insight about the research topic (Coyne, 1997, cited in Boeije, 2010).

3.3 Data collection method

3.3.1 Pilot Interviews

Two academic staff – one from the Engineering discipline and one from the Science discipline – were invited to participate in trial interviews. The purpose of the trial was to determine the suitability of the questions, to test the structure of the interview and to establish if there were concepts that were redundant or if there were significant gaps in the prepared questions. Alterations to the questions were made following the pilot interviews that included a re-structure of the in order in which questions were addressed, and reframing some complex questions that covered multiple issues.

3.3.2 Questionnaire

Each interviewee was asked to complete a short questionnaire to provide relevant demographic and background information. The researcher was primarily interested in the previous work experience of the research participants. The extent to which each participant has worked outside of academia has potential to impact their perception of what employability is and how (or if) it should be addressed within the higher education context, and is therefore relevant to this research as it provides context for staff responses. Additional information collected included the participants' current roles at Griffith, any previous roles (including positions of leadership), age, gender and academic level. A copy of this questionnaire is provided in Appendix 3. Each interviewee was provided with the questionnaire at the time of the interviewee. While all were invited to complete the questionnaire after the interview, all but two completed it before the interview

commenced. The remaining two (coincidentally the two academics who participated in the trial interviews) completed the questionnaire at a later time and returned it via email.

3.3.3 Conduct of Interviews

Each interviewee gave consent for their interview to be recorded and transcribed for the purposes of the research, however, they were likewise assured that all data would be de-identified in any and all research outputs. To that end, all names used in this thesis are pseudonyms, and some background information has been deliberately omitted to ensure the interviewee cannot be identified. In the presentation of data later in the research, some qualitative data will not be attributed to any specific interviewee to ensure the anonymity that was promised and ethically agreed to.

The interviews were conducted across the course of eight weeks in late 2018 at a variety of on-campus coffee shops at the University. The interviews were semi-structured and were conducted in an informal setting with a both thematic and dynamic questions (Liamputtong, 2013). The thematic questions focused on the 'what' of the interview – the topic at hand – and the dynamic questions allowed for a natural conversation that enabled variation and flexibility within each interview. The discussion with each participant therefore evolved naturally to explore ideas relevant to the interviewee's specific context and experience – the 'how' of the interview. The planned discussion topics included:

- staff perception of how employability aligns (or does not align) with their disciplinary content;
- staff views of the role of HE institutions to embed employability;
- staff willingness to embed employability (have they?, haven't they? Why/why not?);
- staff understanding of the language associated with employability; and
- staff understanding of approaches to teaching and assessing employability.

3.4 Reflexivity in Qualitative Research

Liamputtong (2013) affirms that in qualitative research the researcher is an integral part of the research process, and she therefore notes the need for 'reflexivity' or "reflecting

critically on the self as researcher" (p. 29) to legitimise and validate the research. Boeije (2010) likewise identifies the need for the researcher to identify the ways in which their own experiences, thoughts and opinions (subjectivity) may influence the conduct of the research to eliminate potential concern about any bias that may emerge. Geelan (2006) observes that in a constructivist approach to research it is recognised that human bias is inevitable, and that efforts to remove the researcher from the research report in an attempt to remove the bias is inappropriate. He comments that "bias is dealt with most effectively by identifying the researcher and trying to identify the biases, rather than pretending the data just gathered themselves" (p. 67). Hennink et al. (2011) draw on Finlay and Gouch to acknowledge that the background, characteristics and positioning of the researcher and the research participant may exert influence on the other, and they explain that both parties are therefore intimately involved in the construction of the interview environment.

This is particularly relevant in the current study given the researcher's role within the Sciences Group as the Learning and Teaching Consultant and her familiarity with many of the research participants. The following observations acknowledge the researcher's role in the interview process, and, likewise acknowledge Geelan's (2006) observation that the interviewer/researcher should 'emerge from the shadows' into the reporting of the research. Geelan (2006) draws on Steier's notion of the 'reciprocator' to explain that the researcher is relevant in the interview because the responses of the interviewee are being given to 'someone' and that the perception of who that person is must inevitably influence the response.

In the current study the interviewees were all made aware or were already aware of the researcher's role within the Sciences Group as the Learning and Teaching Consultant (Employability). A review of the transcripts of the interviews does reveal that the narrative of the interviews reflected the researcher's existing knowledge and thoughts about employability generally, and about employability at the University and in the Sciences Group at that university more specifically.

Given the depth of the researcher's knowledge of and involvement with the topic under consideration there was potential for the interviewees being 'led' to make certain comments and/or to offer a specific views about employability – thus there was potential for the researcher to bias the interviews. With this in mind, the transcription of each interview was carefully analaysed to determine if this did in fact occur. In the majority of

instances the researcher's comments on any specific topic or issue of concern were offered after the interviewee's comment on that same topic or issue – usually to confirm or reiterate the statement made by the interviewee. In some cases the researcher did elaborate at length – sharing her views and giving examples from her own experience. As opposed to undermining the purpose of the interviews, there is evidence that these detailed responses aided the collection of rich data, because they stimulated thoughts and ideas that might otherwise not have been expressed by the interviewees – affirming the assertions of various scholars (e.g. Geelan, 2006; Hennink et al., 2011) about the influence the researcher exerts on the research. Analysis of the transcriptions revealed that no interview participant was swayed to offer a view that was in any way at odds with, or contradictory to, any earlier or later view they expressed.

3.5 Data Analysis

3.5.1 Transcription

Given the role of the researcher as an active participant in qualitative research (Kvale, 2007), initial data analysis began at the time of the interviews, as is appropriate in grounded theory research. Strauss and Corbin (1998) observe that qualitative research is an ongoing and continuous interaction between data collection and data analysis. The interviewer therefore began to infer meaning (data analysis) based on the participant's responses, at the time of the interview. This 'meaning making' influences subsequent questions within the interview and in later interviews occurring in the same research study. The initial meaning that emerges from the interview process is more formally interpreted during the process of transcription.

Kvale (2007) notes that transcription in qualitative research is an interpretive process not merely a clerical task. He likewise notes that it is beneficial for researchers to transcribe their own interviews where possible, as even a 'willing typist' may miss nuances and (unintentionally) misrepresent data. Ultimately the researcher transcribed just three of the recorded interviews and then outsourced the transcription of all interviews to an external party (to ensure consistency). The researcher then reviewed all transcriptions in conjunction with the recorded interviews, thus ensuring the nuance and understanding (described above) was correctly interpreted prior to analysis.

Scholars have commented there is no 'right or wrong' with respect to how detailed a transcription is, and that the degree to which verbal nuance, such as pauses, laughter etc., are included is dependent on the intended use of the transcribed interview (Kvale, 1996; Liamputtong, 2013). This is relevant in the context of this study as there was some degree of familiarity between the researcher and some participants in the study. In the verbal interviews conducted this manifested in the sometimes informal framing of ideas (shared jokes, use of casual language etc.) and in responses to questions that were intentionally sarcastic, where the interviewee understood the researcher would pick up on the sarcasm, for example.

3.5.2 Coding and thematic analysis – creating the codebook

The final version of the codebook for this research is represented in Table 1. The code book was developed through an inductive process, where the codes emerged directly from the data, based on the issues raised by participants. Given the researcher's existing knowledge of the challenges for embedding employability, a deductive approach could certainly have been applied, however, the researcher chose to employ an inductive approach, and refrained from creating codes until the initial evaluation of the transcriptions. This approach is in line with the interpretative approach to analysis, as the inductive approach to coding ensures the participant's language and idioms are reflected in the wording chosen for the codes. This approach to choosing the language for coding and categorising to reflect the participants' language is observed by Kvale (2007) who further refers to categorising data as a process that restructures large interview texts into manageable segments.

3.5.3 Categorising the data

It is an established fact that qualitative research produces large tracts of text that can be difficult for the researcher to manage – hence the use of codes to help manage data. Given the inherent complexity of the ideas under consideration in most research processes, there can be many individual codes applied, as is in the case in this context, with 36 individual codes identified. To further manage the data and to begin to infer meaning and enable conceptual analysis, the next step in the analysis process was to group codes with similar attributes into broader categories (Hennink et al., 2011). These categories are represented in Table 1 (the code book) as 'grouping codes' – higher order concepts emerging from the large number of ideas expressed by the interview participants.

Table 1: Codebook and themes emerging from the research

Codes		Grouping Codes	Themes
1	Concern about impact of embedding employability on academic standards	• Fear of impact on academic standards • Crowded curriculum	Role of Higher Education to address employability in the curriculum
2	University can exist just for the 'pursuit of knowledge'		
3	Academic time is best spent on addressing 'content'		
4	There is only room for 'content'		
5	University 'talks the talk' but not much is really being done	• Perceived motivations at a strategic level • Lack of communication • Misconception of relevance (to them)	Factors that impact staff attitude about employability-based learning
6	University is driven by money and/or extrinsic motivators and KPIs		
7	University / Group level employability initiatives not known or only vaguely aware of these		
8	Academic staff have change fatigue		
9	Workload/ limitations of time	• Lack of time • Size of student cohort • Lack of financial resources • Mismatch of reward for effort	Implications of workload and measures of staff performance
10	Inability to provide adequate feedback / feedback is essential for effective EBL		
11	Lack of resources (especially financial)		
12	Academics expected to do more		
13	Lack of opportunity to consult with industry		
14	Research is rewarded, not teaching		
15	Impact of SEC/SET on staff willingness to try something new		
16	The university has a role to develop students' employability (within the curriculum)	• Role of academics • Motivation of academics • Efficacy of academics • Support for academics • Approach to teaching EBL	Implications of staff efficacy on potential to embed employability-based learning
17	Academics are not all equipped to teach EBL		
18	Professional development is required for academics to effectively address EBL		
19	Academic feels confident (but acknowledges non-expert and would like help)		
20	Top down support for course convenors required for successful EBL initiatives		
21	EBL should be driven by engaged academics		
22	Academic currently has embedded employability task		
23	Embedded task has a reflective component		
24	Existing employability task is context-specific		
25	Employability skills are not explicitly taught		
26	Student apathy – 'punished' for challenging	• Student apathy • Student expectations • Negativity about EBL • Student capability (or lack thereof) • Diversity of student outcomes / background	Effect of student attitude on staff willingness to embed employability initiatives
27	Students want to be told what to do		
28	Negativity about professional practice courses or employability tasks (including PLE platform)		
29	Some students are too naïve for reflective practice and/or EBL		
30	Students more likely to engage with EBL when it is delivered in context		
31	Students want more 'content'		
32	Diverse possibilities for students in Science make it difficult to embed 'for everyone'		
33	Previous student experiences impact what they 'need' in terms of EBL (flexibility is essential)		
34	Alignment of curriculum content with industry expectations is essential	• Collaboration • Alignment • Student-led activity	Engagement between student groups and industry is essential for success
35	Student led activity will enhance employability initiatives (especially student clubs)		
36	Evidence of success of employability initiatives will drive future engagement of reluctant academics		

3.5.4 Conceptualising the data

The final stage in the coding process was to move to a conceptual level, where data was viewed as a whole. This shift to an abstract level was the precursor to the development of a theory (Hennink et al., 2011). In Table 1 this part of the analysis process reflects the beginning of explaining and predicting the topic under consideration, and it is accordingly labelled 'themes'. These themes form the basis of the analysis and discussion to come.

3.5.5 Manual coding and analysis

The researcher acknowledges that data analysis software (such as Leximancer) is available for the purposes of sorting, labelling and handling data for large qualitative research projects. For the purpose of this research manual marking up, sorting and organising data was achievable given the smaller scope and relatively small number of participants. Basit (2003) acknowledges the unchanged role of the researcher in creating categories, coding and segmenting data, regardless of whether an electronic or manual approach to labelling data is taken. Basit (2003) draws on the work of Coffey and Atkinson to assert that "no amount of routine analytic work will produce new theoretical insights without the application of disciplinary knowledge and creative imagination" (p. 145). This implies a 'hands-on', continuous approach to the analysis of data that takes place throughout grounded theory qualitative research. This constant comparative analysis allowed a relationship to develop between the researcher and the data that aligns with Ely, Anzul, Freidman, Garner and Steinmetz's (1991) observation that this type of interaction between the researcher and the data results in descriptive reporting and theory building. Manual sorting, coding, segmenting and organising data (with the aid of electronic software such as Microsoft word or Excel for searching purposes) was therefore the approach taken for this research.

3.6 Ethical considerations

In qualitative research, ethical considerations often centre on a balance between probing the human experience with enough depth to reveal interesting, relevant data, and the need to respect the integrity of the research participant (Kvale, 2007). In this research, the risks to the research participants were considered low. The topic under consideration did not elicit any deep, emotional or upsetting responses. That said, it was critical to ensure all

participants felt assured there would be no negative impacts if they freely expressed their thoughts with respect to employability at the University, and they were therefore promised anonymity.

This is a crucial observation given the researcher's role as a professional staff member in the Griffith Sciences Learning and Teaching team. There was some small risk that staff might have been unwilling to express their true thoughts if they felt this may impact either their professional working relationship with the researcher, or with any of her colleagues in the Learning and Teaching team, or if they thought their true thoughts were under threat of being 'reported back' to executive staff in the Sciences Group or in the relevant School.

Given the need to delve into the interviewees' true thoughts was essential for the research to be valid, all participants were assured during the interview that their names would not be revealed. Participants have been de-identified in this research and will likewise be de-identified in any further outputs that emerge.

Ethical approval has been obtained for all aspects of the research, and for the collection of additional data not included in this initial research project. The approved ethics (approval number 2018/210) covers a sample of questions and broad topics/themes. A copy of the Ethics Information Sheet provided to interview participants in provided in Appendix 4.

3.7 Chapter Summary

In this chapter an overview of the research methodology was provided. The research was based on a grounded theory qualitative research approach which provided an opportunity for staff to express their genuine views about the challenges/opportunities for embedding employability-based learning during an informal, semi-structured interview. This approach to the research stimulated candid responses to interview questions and generated a range of rich data that ultimately contributed to the development of the key themes, presented in this chapter in the codebook (Table 1). The inductive approach to coding the data ensured the language and idioms of the research participants are reflected in the analysis of results and discussion, presented in Chapters 4 and 5 respectively.

Chapter 4: Results and Analysis

4.1 Introduction

This chapter provides an analysis of the data collected through the interview process, in response to the overarching area of interest that stimulated this research: to create a 'big picture' perspective of the factors (barriers and opportunities) that influence academic staff with respect to embedding employability-based learning in the curriculum. This aligns with the HEA Framework for employability (Figure 4) which provided the conceptual framework for the structure of the research. This specifically includes the aim to establish a shared meaning of employability (phase 1), to map and audit existing activity (phase 2) and to prioritise action to address gaps based on the data collected (phase 3).

One stated goal with respect to employability and preparing graduates to be 'job capable' is for HEIs to empower curriculum designers (including academics) to better address employability (Cavanagh et al., 2015). Identifying the perceived barriers, and potential opportunities to effectively embed EBL from the academic perspective is highly relevant to achieve this goal. It was noted in the literature review that not all academic staff are willing and motivated to embed employability (e.g. Rich, 2016; Bennett et al., 2016). The factors that contribute to, or detract from, this intrinsic motivation to include employability-based learning and assessments were of interest in this research, and were reflected in the specific research questions, noted in chapter 1.

A vital observation in the context of the evaluation of the research data is that the academics interviewed were, on the whole, supportive of employability-based learning initiatives, and, on the whole, were already engaged in delivering EBL to some extent. Therefore, the comments and opinions expressed by the academics interviewed are the comments and opinions expressed by engaged academics with some interest in employability. The barriers and challenges identified are therefore legitimised to some extent as they are not barriers or challenges identified by academics with little or no interest in employability. The analysis and discussion to follow will highlight the extent to which the barriers (perceived or real) have significant impact on those academics who genuinely wish to 'do more' in terms of providing and improving opportunities for students to develop their employability; and it

likewise identifies opportunities from the perspective of academic staff, that may so far have been overlooked.

4.2 Overview of research participants

The final sample in this research is a purposive sampling of academic staff from the Sciences Group based on combined factors of the researcher's prior knowledge of academic staff within the Griffith Sciences and the apparent disinclination of staff who were not interested in employability to respond to the invitation to participate. That said, prior to the conduct of the research it was anticipated the academic participants would be able to be categorised in one of the three distinct groups identified by Bennett et al. (2016). These are:

- Academic staff actively and willingly working to embed EBL within the curriculum;
- Academic staff not actively delivering EBL but willing to do so; and
- Academic staff not delivering EBL with no intention to do so.

Given the current approach to employability in the Bachelor of Engineering (the PPES stream) an additional category can be added in the Engineering context:

- Academic staff actively embedding EBL within the curriculum, based on a directive from within the school or program.

The academics who 'opted in' to the research were only those with existing knowledge of or interest in employability or industry engagement, or associated pedagogical practices such as experiential learning. That is, the staff who responded to the invitation to participate were those who are actively engaged with employability in some way - albeit to varying degrees and with various levels of enthusiasm. While some staff from the School of Engineering and Built Environment (Bachelor of Engineering) could be categorised in the latter group as well, these staff were equally able to be categorised in the first group as they were actively and willingly working to embed EBL in addition to the directive to do so. The lack of opportunity to interview academic staff not currently delivering an embedded employability task is noted as a limitation of the study.

While there was therefore some lack of diversity in the interview participants in terms of their overall experience with embedding employability (i.e. they all have experience and/or genuine interest), the twelve interviewees nonetheless represent several distinct groups

within academia, particularly in terms of their prior experiences within industry, their academic career, and their exposure to specific leadership roles within their respective school or program (such as First Year Coordinator, Program Director). Table 1 summarises the details of the interview participants. Note, 'leadership roles' have not been included in the table as all have held at least one role of this nature at some stage in their career, either at Griffith or at another HEI, and the inclusion of this detail would compromise the anonymity of the research participants. Similarly, the pseudonyms used elsewhere in this thesis have not been included in Table 2 as the combination of the participant's demographic information along with the detail and specificity of quotes provided later in this chapter would compromise the anonymity promised to the research participants.

Table 2: Relevant demographic factors of research participants including industry experience and experience in higher education

Interviewee	Age	Academic Level	Industry Experience	Experience in Higher Education
Participant 1	50 – 59	Professor	15 years	14 years
Participant 2	40 - 49	Senior Lecturer	13 years	13 years
Participant 3	40 – 49	Lecturer	7 years	7 years
Participant 4	50 - 59	Senior Lecturer	15 years	11 years
Participant 5	50 - 59	Senior Lecturer	6 months	22 years
Participant 6	50 - 59	Lecturer	18 months	17 years
Participant 7	40 - 49	Lecturer	2 years	14 years
Participant 8	40 - 49	Lecturer	None	5 years
Participant 9	40 – 49	Associate Professor	4 years	13 years
Participant 10	40 – 49	Professor	3 years	16 years
Participant 11	30 – 39	Lecturer	Yes, not specified	5 years
Participant 12	40 - 49	Lecturer	1 year	7 years

4.3 Employability in context – establishing an 'agreed' interpretation

One key area of investigation in the research was to establish how academic staff interpret the concept of 'employability'. Each of the interviewees was therefore asked to 'define or describe employability' and they were likewise asked to describe any existing assessments or learning activities within their subjects/courses or degree program that they considered included an element of employability. The results of data collected from their responses to this question are summarised in Table 3.

Of note are the responses to the question about the employability-based task, represented in Table 3 as 'context-specific example given'. Of the twelve participants, nine provided a detailed and highly specific example of a task within their discipline, in line with Holmes' (2001) ideas about practice and rehearsal detailed in Chapter 2, the literature review.

Table 3: Summary of research participants' definitions/descriptions of employability

Pseudonym	Transferable Skills	Discipline Skills	Personal Attributes	Transition Out (Get a job)	Job Ready (Be able to do the job)	Know how to learn	Context specific example provided
Dave	✔	✔	✔	✔		✔	✔
Zac	✔	✔			✔		✔
Dylan	✔		✔	✔		✔	✔
Mike	✔	✔			✔		✔
Wayne		✔		✔			✔
Ben				✔	✔		
Jim	✔	✔			✔		✔
Nancy	✔		✔		✔		✔
Kate	✔	✔	✔		✔	✔	
Alex		✔					✔
Russ				✔	✔		✔
Grant	✔			✔			

Notably, these examples were not broadly within the disciplines of 'Engineering' or 'Science', rather, each academic 'drilled down' even further to provide examples from within their core discipline. For example, two academics outlined assessments that mirror the types of reports graduates would be expected to produce in specific industry roles, and both focused on the stringent criteria expected for presentation of the report to match industry expectations. One academic spoke at length about a task in which students role play the various stakeholders involved in creating a zoning plan for commercial fishing, and two academics outlined tasks that were specific to their discipline within Engineering (construction of building, design of a project from start to finish). The remaining four academics specifically referenced the fundamental skills required in their industry, with two emphasising that they would prioritise or focus on disciplinary skills as follows:

> *I think it's obvious for Engineering they need to have the core competencies in the field of Engineering.*

> *At the end of the day I do have to focus on the chemical skills I guess.*

Of the remaining three academics, one described an immersive experience relevant to her discipline, another compared the benefits of experiential (practical) learning activity and assessment to more traditional theory-based modes of study and assessment, and the third

gave an example of an assessment in his course that is heavily employability-based, but which is somewhat separate from the overall subject matter covered in that course. While these academics did not go into minute detail about an assessment relevant to their discipline, they nonetheless provided examples of how employability is being addressed within their course. Thus the prior description of all academics involved in the study as actively delivering employability-based learning is upheld.

In addition to providing context specific examples, the academics interviewed generally described employability to be some combination of transferable skills, discipline skills and (to a lesser extent) personal attributes, as represented in Table 3. Most of those interviewed (seven of 12) ascribed to the notion of employability as representing the extent to which a graduate was 'job capable' or 'job ready'. Of these seven, two academics defined employability in terms of being both 'job capable' and 'ready to transition'. A further four referred explicitly to employability in terms of students being ready to transition to work (being able to get a job). One academic did not reference either 'transition out' or 'job ready' in their definition/description of employability.

4.4 Role of Higher Education Institutions to address employability in the curriculum

One aim of the research was to examine academic attitude regarding the fundamental purpose of university education. This was framed in the research question: are there potential tensions arising from those who believe employability-based learning will dilute the 'true pursuit of knowledge' within higher education? This question emerged on the basis of various observations from scholars that, in light of changes to the structure of the labour market, employer expectations of graduates, and economic and government considerations, universities do (or should) have a greater role to play in developing students' employability and job capabilities (e.g. Cox & King, 2006; McCowan, 2015).

This view was endorsed by a number of the academics in the study. Mike, for example, commented that "a generation ago university was essentially to train researchers" but he emphasised that this is no longer the case. He described the university as a 'business' and commented that 'people are paying a lot of money to come here and there is an expectation that they will go and get a job in that field'. Kate likewise highlighted the business aspects

of the university and deliberately used the language of business – describing students as 'customers' and referring to the contractual obligation the University has to provide students with sufficient opportunities to develop their competencies. Wayne also referred to the rising costs of university and described students as being 'more savvy' when they evaluate what benefits they will get from their study. These views support literature that highlights the reasons students choose to attend university (e.g. Cox & King, 2006; Tomlinson, 2008).

Skinner, Blackey and Green (2011) note the concern from some academics that the increasing the focus on 'competence' (practical / applied skills) will come at the expense of 'traditional academic skills'. This issue, which relates to the notion that universities can exist purely to allow the 'true pursuit of knowledge' was apparent in the interviews to a limited extent. Two of the academic staff interviewed expressly articulated their concern about the potential for an increased focus on employability to create a 'watered down' version of what students 'should be doing'. For example:

> *Zac: I think it's important that we have programs that do have [employability] in mind, but in the same breath I don't think we should compromise the academic standards to which we teach things. The pursuit of knowledge for the pursuit of knowledge is a perfectly legitimate reason to go and study at university. It's not necessarily just to get a job.*

> *Dave: My view on higher education is that it's a place of higher learning so the core thing we do is actually to graduate students that think for themselves and that have these higher learning skills. But I don't see that as being our specific role. We are a seat of higher learning and that should be what a university does. And I think that should be the distinction between a TAFE and University.*

Mike also alluded to this view, although he made it clear he does not hold the view himself. He commented that some of his colleagues are 'more traditional' academics who think "we need to be teaching Science, and [they are] still in that mould of [thinking that] universities are primarily for teaching researchers". He further commented that he would expect some 'inertia' in terms of the attitude towards employability-based learning based on this attitude.

Although Jim did not expressly comment on the potential for employability to detract from academic rigour, he did not appear to fully ascribe to the notion that higher education institutions do have a significant role to play in helping students develop their employability. When asked if it was something the University should be doing he said:

> *Yes, I think so. Not fully but it's probably half our job I guess; a third or half. Which is moving away from the old model of not doing it at all.*

He further commented that:

> *There are some academics that still see universities as a purely academic institutions that teach knowledge and that's it.*

And he clarified that he is 'not entirely' one of those academics.

The following quote from Zac is offered to establish that academic staff do see the potential for higher education to address both objectives – learning for the sake of learning, and getting people jobs. He commented:

> *So it really is about maintaining the academic standards and adding the employability. It's not about trading them off, it's not about saying we're not teaching knowledge for the sake of knowledge and now we're just trying to get people jobs; it's about saying we recognise that some people want to just come here and learn for the sake of it and that's totally fine. And some people come with a distinct intention to get a job at the end of it and everything in between.*

4.4.1 Content is king: the link between employability-based learning discipline-based content

An interesting phenomenon in the employability discourse is the reference to 'content' as a separate consideration to 'employability'. This was noted in the literature review with respect to McCash's (2008) work. In light of the apprehension some academics have about the potential for embedded employability to compromise academic standards, it is worth noting this perceived disconnect. The belief that there may be a disconnect was mentioned by Nancy who commented that "people still see it as somewhat separate to the core

disciplinary teaching" and that people therefore "avoid it where possible" and they just 'tweak' their subject/course to make it look like they are addressing employability.

Further evidence of the 'content'/'employability' disconnect are inherent in comments from the academic staff interviewed that specifically refer to the challenges imposed by the University's 12-week trimester model, and, in the case of Engineering, by the impact of 'Employability Week'. Employability Week is described by described by Howell, Tansley, Jenkins and Hall (2018) as a week in which normal teaching schedules are suspended so students in the Bachelor of Engineering can participate in industry site visits and other activities to enhance their employability.

While the expressed view of the academic staff from Engineering who participated in the research is generally that employability week is a good initiative to help facilitate employability-based learning (in the form of organised, course-based and assessed industry site visits) (e.g. Jim, Alex, Ben); there is simultaneously an undercurrent of tension surrounding the impact of teaching disciplinary content in a 12-week trimester, with a week 'taken out' for employability. Comments about Employability Week exposed an inherent perception of a disconnect between 'content' and 'employability', despite the academics being supportive of employability-based learning initiatives generally. For example, one academic summarised his view of his colleagues' perceptions of employability:

> *Your average academic who knows nothing about this thinks their course is the be all and end all and that content is the only thing that matters. They have trouble defining or seeing the value of professional practice….so the challenge I think is acceptance by some staff - not all - but some. [They think] if it's not content it's worthless. So that's the challenge – to change that perception.*

Jim also added a caveat to his comments about employability-based learning, which were positive overall, to say that there is a need to adapt courses to match employability week, rather than 'scrapping' classes entirely for that week. He referenced the 'reduced teaching load' imposed by the 12-week trimester model and the challenge of 'losing' an additional week for employability week.

In the Science discipline, Dylan remarked that he felt his role was to devote more time to the actual technicalities and theoretical aspects of his course (content), rather than specifically teaching 'employability' (in his case, teamwork), and Wayne alluded to the challenge of the shortened trimesters and the need to 'reduce content'.

4.4.2 Summary

The data in this research suggests some academic staff maintain a view of universities that is more traditional and focuses on the role of the University to provide opportunities to 'learn for the sake of learning'. That said, the data likewise reveals that some academic staff have embraced the contemporary role of the University to ensure graduates are 'job ready'. It also appears the perceived disconnect between 'employability' and 'discipline' skills may impact staff motivation to embed EBL.

4.5 Factors that impact staff attitude to employability-based learning

In Chapter 1 it was noted that the University has implemented a range of initiatives with respect to employability, and it was suggested that a great deal is happening to address employability in both curricular and extra-curricular contexts at the University. With so much activity, it seems unlikely that academic staff remained unaware of the University's drive to address the 'employability skill gap', and yet, data from this research suggests that is the case.

4.5.1 The impact of unseen employability initiatives

The first issue of concern is that the academic staff who participated in this research were largely unaware of university level employability initiatives. All 12 academics were explicitly asked 'are you aware of any Group or University level initiatives that are focusing on employability?'. Eight had an ill-defined view of what was being done, and gave examples based on local-level or school-based activity, rather than university level initiatives. For example:

Jim: The stuff we do in the school obviously, but nothing in particular at the University or group level. I've read a million emails about it but nothing that sticks in my head.

Kate: So they have the IAP project in the final year which is all about getting them out into industry.

Grant: Yes I know that there are societies in the University. There's a society for electronic Engineering called….[the] Electronics club or something.

Two of the responses focused on general activity associated with career development and employability:

Alex: Just the ones I saw through email…like get your CVs ready. I generally ignore most of my emails….so not necessarily.

Wayne: I may be wrong on this but I thought the push towards LinkedIn was maybe related to that?

Given the semi-structured nature of the interviews, the participants in the research were not routinely asked about the Sciences PLUS program, however, it was raised in six of the 12 interviews. Despite the ongoing development of the program and the focus on expanding its impact (originating from the Dean's (L&T) office), there was still a lack of immediate recognition of the program. The staff who were asked about it did acknowledge they had heard of it, however, none were immediately able to describe the program or outline what its function might be in relation to employability, embedded or otherwise, or to describe the relevance to them, as teaching academics.

The apparent lack of awareness of existing opportunities for students to participate in employability-based initiatives emphasises the need for better communication across all channels at the University. Further, the reference by two of the interview participants about 'not reading emails' or 'seeing emails but nothing that sticks in my head' points to another potential issue – that even when there is communication about employability-based initiatives, staff may not see it as relevant to them, and therefore, they do not 'buy into' the information available and (it follows) that they therefore do not act on it. This concept aligns

with the research question that focused on the requirement for EBL to be developed and delivered by academic staff, who are 'non-experts' in the field of employability. In this circumstance the 'non-expert' descriptor is applied simply to highlight that employability as a topic of interest may not be 'on the radar' for some staff. Amongst the inevitable 'noise' of university communications (emails, meetings etc.) the extent to which academics are able or inclined to 'pay attention' to communication about employability is detrimentally impacted by the potential view that they don't really need to pay attention.

4.5.2 The impact of no perceived action at the institutional level

Participants in the research were asked what they perceived the current institutional attitude towards employability to be. Of the 10 participants who were explicitly asked this question, six commented on the University's motivations to develop and deliver employability-based programs. In light of the data presented above, the inference is that there is both a distinct lack of communication, and that even when something is communicated, that it may be dismissed as being irrelevant to them. It follows then, that there might be a 'missing link' in the participants' judgement of whether or not an authentic attempt to support employability initiatives actually exists at the university/strategic level. The participants identified money, ranking and external key performance indicators (KPIs) as three of the perceived motivations for the University's current focus on employability, with an emphasis from some on the 'talking the talk' aspect of the University's messaging, with no visible follow-through to make it happen. For example:

> *Kate: So the University level perspective is largely driven by our ranking and I think they just want that ranking to go up.*

> *Dave: You hear a lot of talk about it….we hear is that there is this issue that we need to be actually developing employability skills in our students, and I don't think we get any support in what that actually means.*

> *Zac: I mean there's a lot of talk about it….I think it's probably one of those issues that the Executive sees as really important because it does directly relate to things that make them money…..If we improve employability we get a better rating, we get more students, you get more money and everyone is happy.*

> *Dylan: I think there is a big institutional focus around the employability. Whether that's a real concern about employability or whether they just want to meet the KPI….I'll be upfront and say given my understanding and the knowledge of how the system works, the University is eager to make sure they can meet certain KPIs regardless of what measures might be in place to actually ensure they are measuring real outcomes for students.*

Notably, three of the participants cited above are from the Science discipline. The remaining two Science academics expressed views that reflected a similar 'burnt-out' mind-set that impacted their view of what 'to do' about employability. Mike commented:

> *….just because there is change fatigue across the whole university. I think everyone wants to say oh for goodness sake just leave it as it is for a minute and let us settle into our roles, let us figure out where the holes are.*

Wayne, also from a Science discipline, was less explicit in his comments but he did reference that employability as a concept is still somewhat 'vague' for many academics. He said that the opportunities to enhance curriculum-based employability learning are impacted by high teaching turnover (and the associated 'danger' of making changes to courses on-the-run), overloaded staff with research-heavy profiles, and need to juggle responsibilities (time-wise), particularly when teaching across two campuses.

By comparison, the Engineering staff in this research, while still expressing some concern, overall expressed a more favourable view. Jim, for example, noted that the attitude towards employability in Engineering is 'better than it used to be' and that, while there is a component of 'branding' associated with good student outcomes (and attracting students), the university nonetheless has an altruistic motivation to do the 'best thing for the students'. Kate clarified her views about the university level driver of 'ranking' to acknowledge that within the Engineering program there is a clear focus from the Head of School to treat employability as a priority with the intention to improve opportunities for students and graduates by creating stronger ties to industry. Alex and Grant were likewise positive about the current approach to employability in the Bachelor of Engineering, with specific reference to the introduction of experiential learning in a variety of Engineering courses and the positive impact this fundamental change has had on the student experience and employability. Russ was also positive in his response, stating: "my experience here is that

[this University] does [employability] well – they are very, very keen on this". Russ also enthusiastically described the positive impact of his engagement with industry on the design and delivery of his courses, and the opportunities thus afforded to his students.

4.5.3 The impact of perceived support for implementing employability activity

While it is noted that the sample size is small, on the whole, there seems to be a more positive view of the University's motivations towards employability from the academics in the Engineering discipline. The differences in attitude here may be able to be attributed to the proactive approach adopted by the School of Engineering and Built Environment with respect to authentic learning and employability. Academics within the school have been supported and encouraged to adopt new ways of teaching with the introduction of experiential learning, an approach to teaching that seeks to construct knowledge and meaning from real-life experience throughout the degree (Yardley, Teunissen & Dorna, 2012).

Additionally, some participants in this research have been 'targeted' for an assessment in the Professional Practice and Employability stream, and they therefore have first-hand evidence that the school is genuinely committed to the development and delivery of employability-based tasks. One comment from an academic with a PPES task, for example, was: "I'm happy I introduced that assignment….I mean, obviously it wasn't my choice, but I'm glad I did". Interestingly this comment also implies a degree of ownership over the task, suggesting the academic didn't feel put-upon or as though the task was shoved into their course arbitrarily, against their will.

In the School of Science and Environment, and within the relevant degrees (Bachelor of Science with varying specialities), the approach to employability has been far more ad-hoc. Little to no systemic planning has been done at the program level. While employability tasks do exist, and there appears to have been some mapping at the local level (e.g. Wayne spoke about regular discipline-based discussions in his area), the higher-level connections between tasks and employability skills, and the scaffolding of students' skills and abilities has not been overtly mapped. In fact, systematically mapping these tasks to create a bigger

picture of the way employability is addressed in Science was suggested as a potential course of action by Zac (ironically from the same discipline as Wayne). The way the Science courses have been changed or removed also seems to have impacted perceptions held by these staff. Dave commented that there has been significant change throughout the programs, but that he hasn't perceived any 'grand plans' for those changes. His perception is that the changes have been driven by money, and he commented that "we don't have enough money to employ people so we have to get rid of courses". Mike offered a similar view:

> *We've lost courses because of a certain amount of panic and just with general financial stress across the whole university. There's all of this panic about [the half cohort in 2020]…the cliff. In my view that will have diluted a hell of a lot by the time we get there, but in anticipation of that from two years ago we've been making everything very, very skinny and we've lost key bits of content.*

Wayne concurred with his Science colleagues and particularly referenced the impact of the research buy-out, which impacts the 'buffer' in the system and the opportunity for staff to 'pick up the slack'. That is, the research buy-out results in less academic staff available for teaching.

4.5.4 Summary

The observations from the data presented above are key to the research question that focused on the extent to which perceived support impacts staff attitude (willingness, motivation) to embed EBL. The comparison of the Engineering / Science disciplines, which embody two fundamentally different approaches, provides some evidence that perceived support, in this case at the School level, does impact staff attitude.

4.6 The implications of workload and measures of staff performance

In the current research, Ryan's (2012) notion that academic staff are juggling unrealistic workloads emerged with specific reference to seven key issues, culminating in the identification that workload and expectation of performance impacts academic staff ability and/or willingness to address employability in the curriculum. The key issues raised by the

academics interviewed are summarised in Table 4. The findings in relation to workload and expectation of performance are presented in this section.

4.6.1 'It's killing me' – why workload models must allow for challenges associated with embedding employability-based learning

The notion of an 'unrealistic workload' is pertinent to this research, given the data collected suggests there is a plethora of factors that significantly shape staff capacity (or lack thereof) to effectively deliver on every expectation of the University – including embedding employability-based learning. Each of these factors (identified by the participants in the research) are represented in Table 4.

Table 4: Factors identified that contribute to an 'unrealistic workload' and inhibit effective delivery of employability-based learning

Factor	Participant response									
	1	2	3	4	5	6	7	8	9	10
Cohort Size			✔	✔		✔				✔
Under-resourced										
Financial		✔	✔	✔		✔				✔
Sessional Staff		✔	✔							
Academic Staff		✔	✔		✔	✔		✔	✔	
Limitations of time										
Marking	✔		✔			✔				
Develop/deliver content		✔			✔		✔			✔
Supporting students							✔	✔		✔
Pressure of competing priority	✔			✔	✔	✔		✔		✔

Notably, the implications of the *limitations of time* and the resultant impact on staff workload was explicitly raised by nine of the ten participants in the research who were explicitly asked about the limitations. These nine referenced one or more of the factors that influence workload such as inappropriate time allowed for marking, student/staff ratio, time required to coordinate experiences related to employability (e.g. industry site visits) and time required to develop and deliver content in innovative ways (e.g. experiential learning). In addition to the data represented in Table 4, the following sample comments are offered as evidence of the consensus from the majority in this research that workload and limitations of time substantially impact staff capacity to effectively embed employability. In this instance the comments have not been attributed to any particular academic, as the detail of some responses would compromise the anonymity promised to those who agreed to participate in the research.

> *I think generally people think [employability] is too time consuming. Yeah, maybe it is. I spend a ridiculous amount of time to do stuff.*

Employability - things like arranging guest lectures or site visits - the logistics is a nightmare. Lecturing a course, going and doing a lecture of a course you've done many times is easy, but the logistics of getting guest lecturers takes hours…..Probably for me the constraining factor is time, so I'm very strategic about what I do.

I think I mentioned the challenges? Time, and money to fund this. I don't really have as much time as I would like to make things happen, but I'll make it happen, and so…..

[It was] a lot more work [to run an experiential learning class]. I was in the lab all day one day a week just for one course…If you do it that way it's definitely a big thing. Doing it properly requires a lot of investment of time.

4.6.2 '45 minutes is woeful': the impact of marking expectations on potential to embed employability-based assessment

Some academics in the research were specifically asked if they found marking employability-based assessments more time-consuming that other assessment types. This question was included on the premise that most employability-based assessments are completed as an individual assignment, and there was evidence that many academics (particularly those convening large classes) design group-based assignments to ensure their marking workload is manageable (e.g. Dave, Mike, Dylan). This approach reflects comments from scholars (e.g. Chalmers et al., 2018) who highlight that much of the literature about marking has emerged from the reality of large student classes and low staff to student ratios, and the subsequent pursuit of marking strategies and processes that will help staff streamline marking and reduce the perceived 'burden' of providing feedback.

In this research, concerns with respect to marking and provision of detailed feedback are upheld based on the comparative views of academic staff in the two disciplines, Engineering and Science. Overall, academic staff in Engineering were more positive than their Science-based counterparts. The fact that the PPES stream is developmentally and financially supported at the School level (including financial support to engage sessional markers) might be the reason for the significant difference in the comments offered by Engineering academics compared with Science academics.

The difference in perspective was evident in the comments from academics in Science, with Dylan offering the most extensive explanation of the challenges of marking student work

with inadequate resources. He began with a colourful "I think I'm just a sucker for punishment" and went on to explain that he does use group assignments when he has large classes (100 students or more), but that an employability-based assessment is an individual written task. He further explained that it takes time to review any written piece of assessment, and that employability is difficult to assess with alternative assessments that are potentially less time consuming to mark. In line with Chalmers and colleagues (2018), Dylan explicitly explained the need to provide adequate feedback for students to develop their skills and said "we just don't get enough time up front". He emphasised that he feels "we are failing [the students] drastically" because "the university does not appreciate how feedback is provided" and how long it can take. He said:

> *Most courses in all the programs are required to have between three and four assessments. We are then given 45 minutes per student to mark all assessments including their exam. If I have written assessments, so if I wanted to have individual written assessments that are going to be five pages per person, I've got 500 pages to mark, and with 45 minutes if I wanted to provide proper feedback there is no way you can mark five pages in 45 minutes and still give feedback, and that's just one assessment and then there's all the other assessments that I still need to mark. So 45 minutes is woeful.*

Dylan's comments were echoed by his Science colleague, Dave, who spoke about the limited time available and the need to spend most of that time productively providing feedback. He emphasised the need for effective feedback to ensure students develop a good understanding of why they are engaging with a particular task, and to provide guidance on how they might improve. He highlighted that "feedback in any sort of assessment is probably the most time-consuming part of the whole teaching [process]."

Conversely, Wayne commented that a well-designed employability assessment can actually streamline marking. He spoke specifically about a pro-forma used in an 'employability-based' practical laboratory experience that was easy to mark. This should be taken in context, however, as the reflective component, the part that is arguably most time-consuming to mark or provide feedback on, and the part that often contributes to the 'employability-based' nature of the assessment, does not appear to be included in this specific assessment – thus proving Dylan's and Dave's points.

The impact of the need to manage increasingly unrealistic workloads and the fact that it does influence staff attitude towards the university level employability 'agenda' is an

important observation. For example, Zac commented on the importance of decisions about resource allocation. He said those in charge of resourcing at the school level must recognise that they cannot continue to expect academic staff to do more with the same amount of resources. He specifically referenced the need for staff to be compensated for their effort:

> *So if they want to add something that's going to take more time and more effort and is something new, then they need to pay for it. And if they don't want to pay for it, then they can't expect academics to do it for free.*

Two academic staff in this research explicitly said that effectively embedding employability-based learning is dependent on support from academic staff, which is dependent on resourcing. Zac's comment was:

> *If you don't have the convenors on board, then it's all just going to tank anyway. It's just not going to work because you really need them to be driving it.*

This is related to his earlier comment about resourcing, and the fact that university leaders should not expect academic staff to continue to add more 'for free'. Alex expressed a similar view. He said "really everything should be driven by engaged academics who want to provide a good experience for the students".

4.6.3 Impact of measures of staff performance: fear of negative student evaluations and a 'black mark'

Another significant aspect that impacts staff capacity and willingness to deliver effective EBL is the 'threat' of the University's current measures of success in terms of the Student Experience of Course (SEC) and Student Experience of Teaching (SET). While arguably a flawed measure of success (or failure) – for example, one academic in the research described this approach to course evaluations as "the most perverse [system] that has been brought into the university" – considerations about SECs and SETs still influence academic behaviour in terms of introducing new, innovative or challenging (authentic) ways of teaching. This aligns with Brownell and Tanner's (2012) observation that changes in an approach to teaching can lead to poor teaching evaluations from students, and that this can be attributed to students' resistance to change.

The motivation to challenge, or not to challenge, students will be discussed in greater detail in section 4.8, however, it is a valid inclusion in the context of situational factors that impact

staff capacity and willingness to address employability in the curriculum, as indicated by the data. For example, it was explicitly stated that staff are fearful of being "punished for trying something different" and that there are fears about the impact of a long-term blemish on their academic teaching 'record' – "at the end of the day it's like a black mark" (Alex).

4.6.4 Staff overload results in limited industry input

Scholars have noted the importance of industry/university collaborations to improve graduate employability and ensure universities are teaching students the skills they will need to be successful in the workplace (e.g. Ferns & Lilly, 2015; Cox & King, 2006). This was noted in the research data, with four of the twelve participants explicitly referencing the benefits of engagement with industry or (in the reverse representation) lamenting their limited opportunity to engage with industry to enhance employability aspects of their teaching and assessments. This challenge is placed in context within the data that highlights the implications of 'workload' and 'limitations of time' because developing and sustaining meaningful relationships with industry partners requires an investment that time-poor academics with heavy workloads are simply unable to commit to. Nancy, for example, commented that a barrier to achieving employability-based learning in her subject/course was the limited opportunity to find industry partners to provide projects for students. She explicitly said:

> *I don't really have the contacts…nor the time to really engage with industry in that respect. So I think that's a little bit of a problem.*

Dylan's comments are also useful to highlight the impact of limited interaction with industry on capacity to deliver EBL as follows:

> *The challenge is how we remain current for employers….we need that information from industry so we know what they're expecting….but we are basically working in the dark in terms of what it is that we need to deliver to the real world.*

He also commented that:

> *[As a teaching team] we just don't get enough time to sit down…and see who is delivering courses in the particular programs and sit down and have a look at it*

really and say what are the assessments delivering in terms of the student learning outcomes….to know how we can modify or build on what's being done in other courses; to make sure the scaffolding is being done properly. Because we're all just running around.

While Dylan's comments about the pressures of time, and his suggestion of academics 'just running around', are not explicitly in relation to finding time for industry engagement, it is nonetheless logical to make this connection. If there is no time for planning, not enough time for marking and not enough time to provide adequate feedback (as he also commented, noted in section 4.6.2) there will clearly be an impact on staff ability to create time to meaningfully engage with industry and employers.

4.6.5 Research is rewarded – the impact on Learning and Teaching initiatives

A final factor impacting staff willingness to focus on employability-based learning, relevant to the concept of the time it takes to coordinate and deliver these types of learning experiences and assessments is the extent to which staff believe they will be rewarded for their efforts. Houston et al. (2006) note the interdependence of research and teaching (the former complements and enhances the latter) and the tensions that exist between the two. Specifically time spent teaching is not necessarily rewarded on level pegging with time spent researching (Leslie, 2002). This aligns with the views of some academics who participated in this research. One academic, whose course design is based on the principles of experiential learning, with an explicit focus on employability, commented that there is a still a view they should 'do less' (in their teaching) in favour of 'more research'. The overt comment was that they are told to "pull it back, pull it back" and that "we are in an environment where research is the dominant thing. And there is really no reward for doing work on teaching, but there is if you do research". Similar views were expressed by other academics in the research. For example, Alex commented that "as a typical academic you have to research and write papers, because that's what gets you promoted. You get 40% for teaching and you have to keep it to 40% if you want to be successful."

4.6.6 Summary

Data gathered in this research suggests the impact of workload does influence staff perception of their capacity to embed EBL. The normalisation of an unrealistic workload has resulted in staff who have concerns about their capacity to provide effective feedback to students, to engage meaningfully with industry, to dedicate the time required to innovate and develop authentic teaching and learning initiatives, and to balance the expectations of maintaining high research output against the provision of a quality student experience.

4.7 Implications of staff efficacy on the potential to embed employability-based learning

The results of the research presented in this section correlate with the notion that academic staff may be 'non-experts' in the area of employability. This was explored in Chapter 2, the literature review. An important observation, relevant to the analysis of the data, is that the academic staff in this study have all had some industry experience (refer to Table 2 – demographics of interview participants). In terms of the Bennett et al. (2016) categories, presented in the literature review (p. 31), there is heavy representation from category 1, limited representation from category 2, and no representation from category 3 - "Educators who do not agree they have a role in the development of employability and are unlikely to engage unless required to" (p. 3). The limitation of the homogenous nature of the research participants in this aspect (industry experience) is noted. Despite the limitations some interesting observations and comments emerged during the interviews that illuminate the potential for staff efficacy and/or lack of confidence to impact the likelihood that staff will embed employability-based learning activity and assessment.

The first key observation is that academic staff, while expert researchers in their own disciplines, are "not at the coalface of [the scholarship] of learning and teaching". This view was explicitly expressed by Dylan, and he further emphasised the lack of opportunity to participate in professional development activity that would contribute to his confidence with respect to learning and teaching. He said:

Typically when there's options or opportunities to go on workshops or skills development days around learning and teaching, typically they are all scheduled at a time when academics are busy. And we can't go no matter how much we want to go.

The second key observation, in line with the observations of Rogers et al. (2016) with respect to staff confidence, is that academic staff do not feel entirely certain about their ability to effectively embed employability in the curriculum. Of particular note was the tendency for the academics interviewed to contradict themselves when asked about their confidence to develop and deliver employability-based tasks. Three of the twelve respondents initially answered positively when asked 'how confident do you feel to embed employability?', but their statement was immediately clarified with the reverse (contradictory) view as follows:

Dylan: Yeah, I guess I feel quite comfortable….but I'm not good at it.

Wayne: I guess I [am confident] to some degree, but I would certainly appreciate people like yourself to provide advice.

Grant: Yeah I'm confident. I'm keen to help them, although sometimes I don't know how and if there are external help or people who know better then it's about cooperating.

Jim also spoke about his confidence to embed employability and said that although he is comfortable now, he wouldn't have been five years ago. He said he has developed confidence because he felt supported (by the School) to try something new, and he was inspired by a motivational speaker who spoke about experiential learning. This is relevant as it reflects that opportunity to participate in professional and personal development is crucial for staff to develop the confidence to innovate.

Alex mentioned the 'risk' associated with experiential learning. He said "low risk is to have everything tightly packaged and provide as much service as you can to the students …like drip feeding them". He felt that less-competent lecturers were more likely to take this approach to minimise the potential for negative feedback from students – meaning it is far less likely these academics will be willing to introduce employability-based learning.

4.7.1 Teaching employability skills

All of the academics involved in this study confirmed they had an assessment task that explicitly addressed employability in a course they currently teach and/or in course/s they have previously convened. The categorisation of the assessment as an overt employability-based assessment was usually based on it being an authentic experience that mirrored the work graduates would be expected to do in the workplace, relevant to the specific discipline, however, some of the academics interviewed also expressly identified tasks that provided an opportunity for students to develop transferable skills. For example, Zac specifically mentioned problem solving and critical thinking in relation to a first-year foundation course and Dylan specifically mentioned group work.

While it is notable that the academics are providing real-world tasks for students to develop their skills, it is likewise notable that of those who had an explicit employability-based task, most did not consider they were overtly teaching the skills required for employability. For example, in reference to his employability task, Mike specifically referred to tasks that demonstrate initiative and the problem solving skills and he commented that "those are much harder to teach and to demonstrate in a curriculum sense". Mike contextualised his thoughts about the relevance of teaching transferable skills when he further articulated his view that as an employer, it can be relatively easy to make a judgement about a graduate's skills in terms of the 'Science' but it can be harder to determine if an applicant has well-developed teamwork skills, problem solving skills, self-discipline and time management. The need to overtly teach these skills is tightly aligned with the notion of 'transparency' – ensuring students are aware of the skills they are learning, so they can recognise the way their skills are developing (e.g. Barrie, 2009). While a discussion about multiple 'transferable skills' did not take place in the interviews, there are nonetheless indicators that this level of transparency, and overtly teaching skills for employability is not occurring.

In this study, this was evidenced by the comments from academics who overwhelmingly said they did not teach teamwork (as an example of not explicitly teaching employability skills) – rather that they provided guidelines and pointers, or gave some general tips, but basically just left the students to it (e.g. Alex, Mike, Dylan, Dave).

In contrast, teamwork skills are *overtly taught* in one course convened by one of the academics in the study, however, the workshop on this task is delivered by a guest lecturer. The workshop is customised to suit the course and the task the students are required to complete (in groups) but the core aspects covered are relevant across all disciplines and can therefore be easily adapted to suit individual courses. This is one example of a partnered approach that can potentially enhance the work of academics via 'cross pollination' of knowledge. That is, where one person, group or team (etc.) knows of a resource (online module, workshop outline, learning activity) that already exists, there is opportunity to easily introduce these resources to multiple courses and/or contexts.

The 'partnered approach' to employability also has the potential to impact the way employability skills are addressed in the curriculum by developing academic confidence through validation of their approach. For example, Mike, who is very confident to develop and deliver innovative learning activities and tasks to engage students in creative ways, still commented that he would like feedback on an assessment he has designed (with an employability outcome). Dylan, explained an approach he currently uses and commented "there might be a way I can do it better" – suggesting a collaborative approach, an opportunity to brainstorm and generate new ideas, and an opportunity to learn how others are approaching similar challenges would be beneficial.

4.7.2 Summary

Data presented in this part of the thesis affirms the notion that some academic staff do perceive themselves to be 'non-expert' in terms of employability. It likewise affirms staff are keen to participate in appropriate professional development with respect to the scholarship of learning and teaching. It also establishes that they are keen to create strong working partnerships with colleagues who can provide advice and offer them support with respect to embedding employability and overtly teaching transferable skills in tandem with discipline skills.

4.8 Effect of student attitude on staff willingness to embed employability-based learning

Baker and Henson (2010) note the role of 'students as partners' in developing and delivering employability-based initiatives. They comment that academics and support staff should not develop opportunities to build or enhance students' employability "in isolation, believing the benefits of participation will be self-evident to students" (p. 64). They further expound that students who take ownership of the process will develop greater awareness of the relevance of the approach, and will engage all-the-more. Whilst theoretically sound, this notion is challenged by the results of this study that suggest students have a range of attitudes that might prohibit such active involvement. That said, it must be noted at the outset that the opinions of the academics interviewed about student engagement with employability (or university learning in general) is not all-encompassing. That is, they acknowledge that there are diverse cohorts of students – some of whom will be proactive regardless of support from academics and professional staff, some of who will do nothing, regardless of support from academics and professional staff. Recognition of the diverse attitudes of students was best expressed by Dave when he said:

> *There's a core set of students that get all of this, and they actually finish their degree and they've taken on board all of these various skills that we have tried to impart on them, but then there's another whole cohort of students who have no idea whatsoever and so that's the real challenge.*

The academics' views of the challenges of student attitude in relation to employability-based learning are captured in Table 5, categorised by the key themes of apathy, aptitude, defiance, and postponement.

Table 5: Academic staff perceptions of student attitude to employability

Category / Theme	Example Quote
Apathy "Can't be bothered to do it"	Kate: [Students are] obviously battling with a certain degree of apathy because they are late teenagers who are going through hormone changes…they don't even want to get out of bed in the morning so employability- what? Dave: We're not quite sure what is it that we do with those that bottom third of the cohort where… they're not in engaged to the point that they just not here.
Aptitude "Just tell me what to do"	Grant: They want you to hold their hand and take them through the whole semester. Alex: [Students] will actually punish you for trying something different - for doing experiential learning … or [if you] push them to do any independent thinking. [So the way to be successful] is to actually have everything structured and packaged with a bowtie on it. Dylan: I've had problems with students in the past where they said just tell me exactly what I need to do, and I'm going no, I can give you guidance about what you need to do, I can direct you about how you need to go about doing it, but I'm not going to tell you to do X or Y because that's just rote learning. Nancy: They don't really like the uncertainty of the experiential learning. They are very comfortable with being told what to do and what the expectations are.
Defiance "I shouldn't have to do it"	*Responses to question about student attitude towards professional practice courses.* Dave: Well they hate it. They absolutely hate it. They think why are we doing this? We are here to do a Science degree and we should be actually being taught about Science. Zac: It's not good…..I suppose they saw it as well *I'd rather just be doing another Science course then learning how to write a resume*…. Russ: I would say the perception of the students [is a challenge to embedding employability]. They think: *Why are you teaching CV's and cover letters? Why can't we have an assessment about [the specific discipline skill]?*
Postponement "I'll do it later"	Alex: [Some] students see it as jumping through hoops….and this is classed as getting in the road. So they've…got all of these things to do and [they think] *I just want to know what they need to do to pass this degree*. And that means experience, the industry, their career what they're interested in within that career is actually put off to a later decision.

There is clear evidence from the academics interviewed in this research that apprehension (worry, concern) about student attitude towards embedded employability does exist. This specific question was posed in the research, and data presented in this section affirms that perceived negativity from students about EBL might impact academics' decisions to include or not include employability in their subject/course. This type of decision-making and the resultant avoidance of assessments and learning activities that may provoke student

disapproval, is tightly aligned with the notion of the fear of negative student evaluations, and the potential negative impact on SECs and SETs (noted in section 4.6.3).

4.8.1 Limitations of the 'career toolkit' view of employability and the potential impact on student attitude

Of note in the quotations selected above to illustrate the impact of student attitude on staff motivation to embed EBL, are two of the academics' statements about employability that specifically referred to Curriculum Vitae (CV) and cover letter (Russ and Zac). While this section of the research is concerned with student attitude, the implications of staff interpretation of employability, and the consequent effect it may have on student attitude is relevant here. Ben specifically commented that student acceptance of employability-based learning can be detrimentally impacted by staff acceptance (or lack thereof) if staff perceive "anything that's not content [to be] not worthwhile". A broad definition of employability was presented in section 4.3, and is the premise on which the data has been evaluated. That is, that employability extends far beyond the 'career toolkit' to include skills that will prepare students to be successful in the workplace, to proactively manage their career, including the transition from university to work, and to be 'job capable' at the time of graduation. This interpretation was acknowledged by all academics in the study when they provided their own definitions of employability (represented in Table 3, p. 54) that align with this description, however, the tendency to reduce employability to 'only' include a CV and/or resume, however briefly, warrants attention.

4.8.2 Does embedded employability-based learning disadvantage engaged students?

Zac presented a view about the 'place' for embedded employability-based initiatives that focuses on the impact of embedded employability-based learning on engaged and motivated students, and it would be remiss not to include this perspective in this thesis. Zac's view is that engaged students will independently seek out opportunities for their own personal and professional development, including accessing the services provided by careers and employment to seek feedback on their CV/resume. By extension his view is that embedding EBL could be detrimental to the advantage being sought by these students. He said:

> *[Embedding employability is] kind of giving an unfair advantage to the students who couldn't be bothered to do that in their own time. It was bringing them up to a level where the students who had already done it were like, "Well, I did this in my own time so that kind of gives me a competitive advantage because I was willing to do it, but now we're bringing everybody up where they wouldn't have done it anyway."*

Zac's observations are in accord with the observations of Speight et al. (2013) who reported that the majority of staff and students in their study felt employability should be addressed outside the curriculum. Zac expanded on his comments to highlight that an extra-curricular model preserves the opportunity for motivated students to gain a 'competitive edge'. The potential for embedded EBL to negatively affect the engaged students' attitudes (in a fundamentally different way to the non-engaged students) is an important distinction, given the majority of comments about student attitude (represented in Table 5) were firmly centred on a perception of the attitudes of unmotivated students (evidenced within the quotes provided). Zac concluded his remarks about student attitude with a comment about how to accommodate a diverse cohort with multiple needs, objectives and past experiences. He said:

> *So I think the whole idea of being flexible…is the most important thing for Science, because it's just so diverse. So to not kind of push on [the students]:* you need to do this amount of career stuff, and this amount of personal stuff*. It's kind of letting the student select what they think is most relevant for them depending on where they see themselves going.*

4.8.3 Ideas for change offered by the academic staff participants

Whilst providing insight about the challenges they encounter with respect to student attitude and apathy, many of the academic staff offered some ideas they perceived could effect change. These ideas are presented in this part of the thesis, as they represent staff perceptions for opportunities to better address employability within the curriculum.

Impact of terminology

Mike raised an issue about the terminology 'employability'. He commented that in his view many students are simply 'scared and sceptical' about the term 'employability task' and suggested re-branding and reverting to 'tin tacks' might be order: "[We just need to say] this is what you need to do to get a job. Do you want a job?"

Promote the role of the lecturer

Both Ben and Russ noted the influential nature of the academic/student relationship. Ben noted the potential for negativity, or apathy, to breed negativity, or apathy. Russ recognised the potential of the relationship in a positive light: "But I guess it goes back to the main lecturer because the students may not see the relevance to the course, but if the lecturer tries to let them know *guys, this is very, very significant, and you should appreciate this that is someone will help you*."

Scaffold throughout the degree

Ben commented on an approach to employability that has previously existed within Engineering – to deliver it all in one course at the end of the degree – and labelled this approach 'pointless'. This is reflected in the 'defiance' category in Table 5 - i.e. that students don't want a 'block' of employability-based learning delivered in one course. This is a view also expressed by Zac. He said: "I think it should be done and I think it should be done throughout the courses and spread over a longer period of time….because then it's just a small fraction of what [the students] are learning and they might see it as valuable".

Be Flexible

The notion of flexibility, and the need to adapt employability-based learning and extra-curricular programs and initiatives to cater for the diverse experiences, aptitudes and motivation levels of students is of crucial concern. Zac highlighted this when he commented "it just means we have to be a bit clever about how we embed employability [to allow for]

students with different needs". His observation epitomises the need to develop alternative employability assessments within any given course to cater for student diversity.

Capitalise on student excitement about potential

Kate is quoted in Table 5 with respect to student apathy, however, the full context of her comments are relevant. In addition to student apathy, she mentioned a "battle between apathy, excitement and parent intervention" and commented that "there is a play on being excited about what could be….so if excitement wins over apathy – excellent." She further commented that the 'trick' here is to learn and fully appreciate what makes students excited.

4.8.4 Summary

It is clear from the data that student attitude towards employability generally, and embedded employability-based learning specifically, does impact staff perception and willingness to embed employability. There appears to be a strong perception that students will not fully engage with employability-based initiatives, either in the curricular or extra-curricular sense, and that embedding employability may compromise the advantage of some 'eager' students, compared with those who are not as motivated. Suggestions from staff about ways to overcome these challenges were included in this section, as these represent potential opportunities to overcome the apathy some students may have towards employability.

4.9 Engagement between student groups and industry is essential for success

It is widely acknowledged that developing student/graduate employability and job capability are most likely to be successful if there is collaboration between university and industry (e.g. Robinson, 2009; Mourshed, et al., 2012). In this research, the data indicates potential positive outcomes if stronger relationships between students and industry can be established.

4.9.1 Leveraging student clubs to increase student engagement in industry networking events

When asked about current opportunities for students to develop their employability skills, four of the twelve interviewees explicitly mentioned the role of student clubs and the potential for student-led activity with a professional development focus to create increased opportunities for students. Jim in particular described the success of a recent student-club-run event that attracted 130 students from across all year levels in glowing terms: "the room was packed and everyone was amazed at how successful it was". He went on to explain that the success of that event had prompted him to evaluate the best way to tap into this type of student-driven participation, recognising that "[the student clubs] have more clout with the students and we have more industry contacts". His thought – to intentionally capitalise on academics' relationships with industry to connect the student-club leaders with relevant industry professionals – has significant potential to bridge some of the gaps identified by scholars in relation to the ongoing discrepancies between the skills graduates have and the skills employers want (e.g. Australian Industry Group, 2014).

4.9.2 The diverse ways industry can contribute to employability-based learning

The potential for collaboration with industry to significantly influence employability-based initiatives within higher education institutions was reviewed in the literature (e.g. Cox & King, 2006; Grotkowska et al., 2015). During his interview, one academic explained the impact this type of academic-industry-student relationship has had on the course he currently teaches and in his previous experience at a different university. He described the active participation of members of the industry advisory board with respect to the program design – for example, when specific courses should be taught, or what the content should be – and confirmed that within his school "they give us a lot of insight and I see this as employability". He shared his creative approach to employability, which centred on relationships (and networking) with industry:

> *I used to say, what plus what plus what plus what equals a job? So okay, experience, plus qualification, plus luck, plus connection, plus networking with industry. So having the experience, having the qualification, yes, that's good, but without networking, without the connections with people, it's going nowhere.*

Mike likewise highlighted the key part industry can play to help shape curriculum for optimum alignment between the skills students are developing and the skills employers want. He spoke at length about a tightly interwoven approach he had seen work for a Masters' program – where the development of the finance degree and was 'really tightly tied' to the financial industry regulatory body and "the students coming through there…know all about the ins and outs of the industry at the end of it". He acknowledged that this was a post-graduate level program, however, he felt that 'simple things' could be done within his discipline-based undergraduate program to achieve similar outcomes. He emphasised that "we tell them over and over and over again" about the practical things they need to do, but students often did not 'react' to this type of advice from academics. The inference here aligns with Russ's observations – that there is 'power' in students hearing something direct from industry in addition to hearing it from their academics.

4.9.3 Summary

Staff identified partnerships with industry and enhanced interaction between students, academics and industry as opportunities for employability initiatives to gain better traction with students. They likewise acknowledged that industry involvement in curriculum design and delivery has the potential to involve all stakeholders in authentic, 'real world' scenarios that properly leverage and strengthen the academic-industry-student connection.

4.10 Practical application: a model of factors that impact employability-based learning

The pragmatic output from this research (Figure 6) is the result of the powerful insight drawn from the HEA Model of employability (Figure 4) that provided a conceptual framework for this study, and the results of the data collected and analysed in this section of the thesis. That is, in phase three, the HEA model emphasises 'prioritising action'. This call to action is coupled with a response to the overarching research question which focused on identifying challenges and barriers to embedding employability from the perspective of academic staff. It follows that the practical output from this research will suggest strategies to overcome the challenges and capitalise on the opportunities, based on the results of the data analysis in Chapter 4.

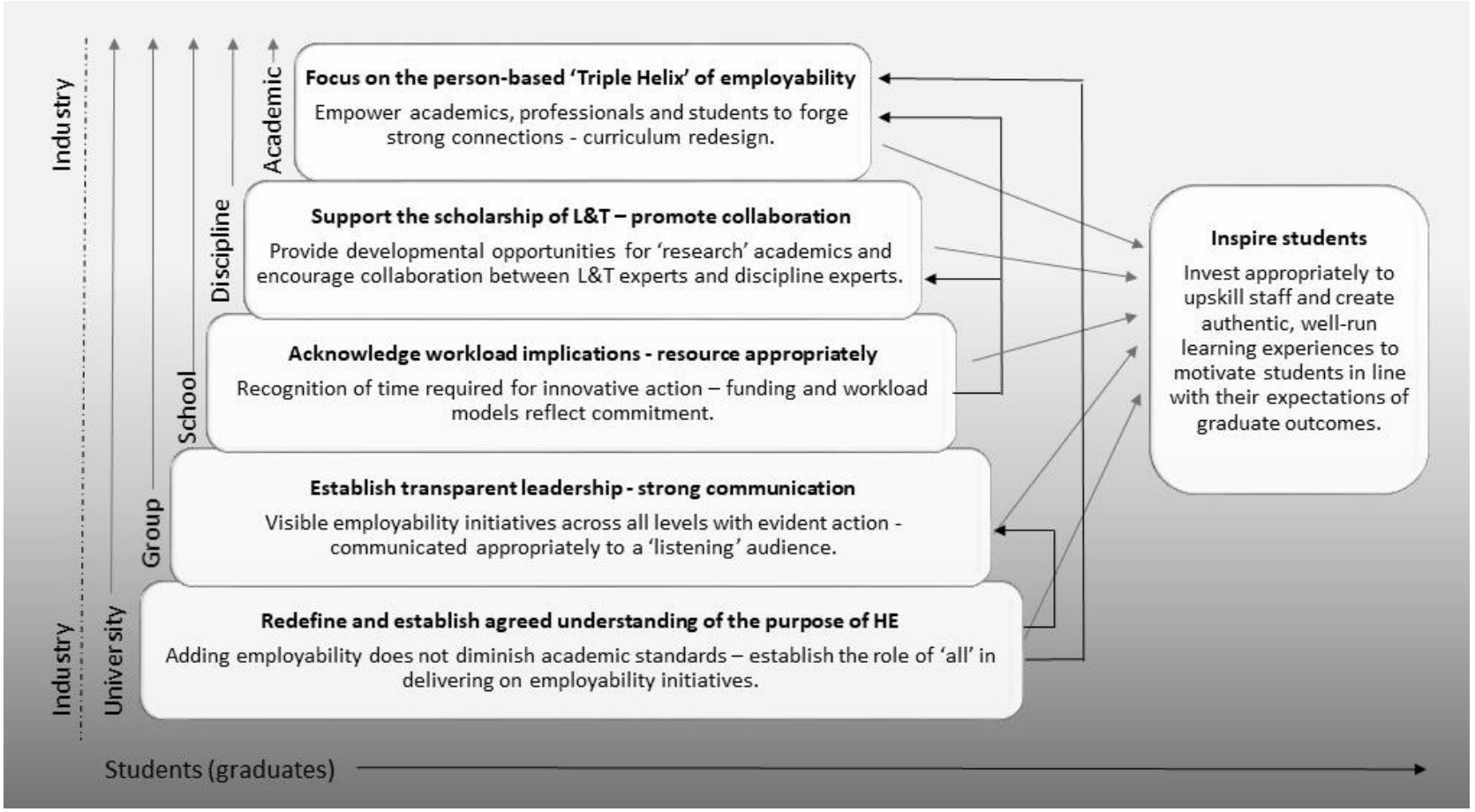

Figure 6: A practical guide to assessing a university's strategic readiness to embed employability

The outcome is a practical model that presents a holistic view of the factors that can be considered by university leaders and curriculum designers with respect to developing initiatives to effectively embed employability. The model is presented in Figure 6: *A practical guide to assessing a university's strategic readiness to embed employability.* The model encapsulates the results of the research, moving from a presentation of results (detailed in this chapter) to practical application of that knowledge. It recognises the role of all stakeholders, and highlights the extent to which action taken by stakeholders in each of the hierarchical 'tiers' of the University will impact the practical potential for each of the subsequent 'tiers' to enact the University's strategic plan with respect to employability. Potential positive implications arising from application of this model are considered in Chapter 5, the discussion chapter.

4.11 Chapter Summary

The findings from the research were presented in this chapter, in line with the key themes that emerged during the inductive coding process outlined in Chapter 3. The themes were supported with personal narratives from the research participants, with specific examples provided to highlight the diverse ideas that contributed to the emergence of each of the themes, and related subthemes.

Key themes included the perception of the role of higher education institutions to address employability; factors that influence staff attitude, including the impact of 'invisible' employability initiatives at the university level, and the impact of ineffective communication from university leaders to academic staff; the extent to which the need to manage unrealistic workloads influences staff willingness and motivation to embed employability, including exploration of the factors that contribute to these unmanageable workloads; the implications of staff efficacy and lack of confidence, and the impact of limited opportunity to attend professional development; the impact of perceived student negativity or apathy about EBL on staff attitude; and the identified need for staff to facilitate interaction with industry to increase industry contribution to curriculum design, and to establish opportunities for students to interact with industry in a structured way.

The analysis of data in this chapter culminated in the presentation of a practical model that highlights each of these themes, with specific reference to the range of internal stakeholders at various 'hierarchical' levels, including students; and external stakeholders, namely industry partners. A discussion of the findings with respect to the current literature is presented in Chapter 5, with specific emphasis on the ways in which the current research contributes to and extends existing literature.

Chapter 5: Discussion

This research aimed to establish academic staff perceptions of the barriers and opportunities associated with embedding employability in two undergraduate STEM degrees at the University. A review of the literature revealed that substantial work has already been done across the higher education sector, both within Australia and internationally, to address employability in both curricular and extra-curricular contexts. The literature review likewise revealed an accord amongst scholars that indicates there are still gaps in employability initiatives, including limitations in understanding what the measures of success might be. Harvey (2001) for example, suggests one measure of success might be concerned with the quality of employability initiatives offered within a HEI, while Young, Palmer and Campbell (2017) flag WIL programs as the primary driver to evidence the achievement of employability outcomes for students.

These gaps in knowledge may impact the extent to which employability-based initiatives can and do contribute to the personal and professional development of graduates to enable them to become work ready and well-prepared to contribute in the workplace and meet employers' expectations. The current research is pertinent in the context of these identified gaps because it took a holistic approach to examining the factors that may impact academic staff motivation and willingness to action employability initiatives on behalf of the institution at either degree (program) or subject (course) level.

In this discussion chapter the results of this research are examined in light of the relevant literature, and in response to the five specific research questions posed in Chapter 1:

1. Are there potential tensions arising from those who believe employability-based learning will dilute the 'true pursuit of knowledge' within higher education and/or a perceived disconnect between discipline specific content and employability content?
2. How does perceived support (at various institutional levels) impact staff attitude to employability-based learning?
3. What is the impact of the requirement for employability-based learning activity and assessment to be developed and delivered by 'non-expert' academic staff?

4. To what extent do academic staff perceive student attitudes towards embedded employability-based learning impacts its effective delivery?
5. What role do employers and industry have in developing students' employability in the university environment?

The contributions to the literature, based on the results of the study and the presentation of a practical model for application of the results, are discussed in this chapter.

5.1 Definition of employability in context of this research

While not included as a specific research question, one stated aim of the research was to establish what academic staff perceive the term/concept 'employabilty' to mean. To that end, the academic staff interviewed were all asked to 'define or describe' employability. A summary of results was presented in Table 3 (p. 54), and the associated data was analysed in section 4.3. The following key observations emerged from the data analysis, relevant to the discussion of the findings from the research.

The first is that the academic staff interviewed did describe and seem to interpret the term 'employability' in line with the pervasive definitions of the term within relevant literature. That is, employability is a combination of transferable skills, personal attributes and discipline skills along with the ability to either get a job, and/or to do a job, and/or to sustain work (lifelong learning)(e.g. Yorke, 2006; Kinash et al., 2015; Brown, Hesketh & Williams, 2011; Hillage and Pollard, 1998). Thus 'employability' in its broadest sense can be agreed as the definition of 'employability' within the context of this research.

The second is that, broad definitions of employability notwithstanding, there was a seemingly inherent tendency for the majority of the academics interviewed to narrow the scope of teaching and assessing employability to the specific, expected performance requirements of graduates in their discipline. This is at odds with the academics' overall interpretation of employability and suggests they are very aware of teaching for employability within their discipline, but may not be as aware of teaching employability to

equip students with the portable skills and capabilities required for the twenty-first century workplace. This is an important consideration for those with an interest in the capabilities of the future workforce (e.g. Deloitte, 2017; PwC, 2015).

The third observation is an amalgamation of the first two and it evidences Barrie's (2012) observation of the need to value and recognise the intimate relationship that exists between the development of generic/transferable attributes and the disciplinary context in which they are developed. For the teaching academics in this research 'employability' is the big broad concept previously described, but it is likewise a drilled-down set of competencies relevant to the academics' specific discipline. Therefore, to develop students' employability students must be provided with opportunities to practice and rehearse what they will do as chemists, civil engineers, marine biologists, microelectronic engineers, environmental engineers or environmental consultants (etc.), and they must also be provided with opportunities to develop and recognise the broader skill-sets that will make them employable now and in the increasingly turbulent workplace of the future. This is an important consideration for curriculum developers and designers with an interest in embedding employability-based learning, and it supports the similar findings of Harvey, Moon, Geall and Bower (1997) who stressed this as critical to success.

5.2 Implications of opposing views of the purpose of higher education

The conceptualisation of the contemporary university has changed (McCowan, 2015) with a shift in the purpose of university away from primarily preparing researchers to include a focus on employability and preparing students for work (Cox & King, 2006). This shift is reflected in the reasons students choose to attend university. There is evidence that students make strategic and informed choices to undertake study with an expectation the attainment of a degree will result in improved employment prospects and greater earning potential at a future time (e.g. Cox & King, 2006; Tomlinson, 2008). A review of the literature revealed that academic staff attitude about the role of universities has not necessarily kept pace with these changes. Scholars report fears that the 'traditional academic values' will be compromised if employability is prioritised (Baker & Henson, 2010) and there is likewise a

fear that the shift from academic inquiry to work-readiness may de-value higher education (Starkey & Tempest, 2009).

It follows that if traditional views of university learning and academic pursuit of knowledge are sustained by academics in the contemporary university climate, then a perceived threat to the 'conventional' curriculum might also exist. Speight et al. (2013) reported that this traditional view might be held by students as well as staff, thus affirming the notion of a potential bias against the inclusion of employability-based content in mainstream curriculum.

Despite this bias, and potential opposition, in the current climate (and quite probably in the future climate) universities cannot simply ignore the imperative to include employability-based learning given the focus on employability is being driven by government policy, professional bodies, employers and students (graduates) themselves (Skinner et al., 2011). McCowan (2015) described this with the analogy of a) drifting in the current, b) being swept away by the current, c) rowing in the direction the current is going or d) engaging in purposeful travel. If there is a predisposition towards teaching for the 'true pursuit of knowledge', or if there is a misconception about the exclusivity of teaching for knowledge or employability (but not both), it is clear 'purposeful travel' is called for.

The data collected and analysed in this research is significant in light of this need. It extends on the existing literature (e.g. Starkey & Tempest, 2009; McCash, 2008), and provides evidence that tensions do still exist with respect to academic staff beliefs about the purpose of university. It highlights the imperative for university leaders and curriculum-designers to take the potential for a negative attitude about employability seriously and to cleverly design embedded employability-based content (learning activity and assessment) that is sensitive to the perceptions of staff and students, and which complement and integrate with discipline-based content. An evolved view of the relationship between disciplinary content and the employability-based learning that aligns with the notion of 'graduate identity' and the need for practice and rehearsal suggested by Holmes (2001) is dependent on establishing institution-wide agreement that adding employability will not diminish academic standards.

5.3 Implications of poor communication from University leaders

Data collected in this research confirms there is a distinct lack of awareness in the 'general' academic community about the extent to which the university in this research is creating opportunities for students to develop, recognise and articulate their employability. This lack of awareness and perceived lack of activity has had a substantial detrimental impact on academic staff attitudes and is related to the perception that they are expected to address employability when the University apparently is not. Academics have heard the 'talk' but do not perceive any action being taken. Evidence from this research suggests the potential for academics to develop and sustain this type of attitude can be tempered by supported and encouraged activity at the school or discipline level, even if there is a perception the University isn't 'doing much'. In this research this was demonstrated by the differing views of the Engineering and Science academics who were interviewed.

Given the broad scope of purposeful activity that is taking place at University and Group level, it is interesting to find that engaged and interested staff were unable to specifically identify any of these initiatives. Within this research, this was specifically investigated in the context of the level of support academics feel is available to them to address employability in the curriculum. A further consideration is that, as a direct line of communication to students, academic staff are key to inspiring students to seek out and participate in University level or Group level opportunities– but promoting them to students may prove challenging if they don't know they exist.

One opportunity to begin to address this challenge was identified by Ben during his interview. He commented that the challenge is to create acceptance of the need to address employability within the academic community, and that the opportunity lies with good leadership and 'making a strong move' to help academic staff (and by extension students) understand that it is important. He specifically referenced the need for better communication from University leaders, and he highlighted this as a potential opportunity.

The data in this research also suggests that a perception of support can be closely associated with a perception of commitment. That is, if academic staff perceive the University is

demonstrating their commitment to an employability agenda by actively 'doing something', they may feel their own efforts to address employability are more likely to be supported. It follows, and the data suggests, that a lack of visible activity at the strategic level will have a detrimental impact on the implementation of activity at the local or individual level.

5.4 Implications of inadequate resourcing

The literature review in chapter 2 highlighted that academic staff in the higher education sector are increasingly burdened by unrealistic workloads as they attempt to deliver favourable results across multiple performance indicators to achieve performance objectives set by universities, which are often also used as a measure of success (e.g. Kenny, 2018). The literature review emphasised numerous factors that have contributed to the 'normalisation' of work overload, including the increase in student-staff ratios, reduced funding, and increased expectation of cutting-edge research and associated research output. Given the known drivers for universities to address employability and to introduce initiatives to the bridge the 'employability skill gap' (see Chapter 2), the notion that academic staff are expected to deliver on the university's performance objectives in the area of employability can logically be included as a factor that contributes to staff workload.

The data in this research suggests there are significant connections between resource allocation and staff attitude. The comments from the staff interviewed demonstrates that they are consistently asked to simply add more layers to what they do, but there is no arrangement for additional resources to enable this. Coaldrake and Stedman (1999) noted this tendency when they commented on the academic behaviour of 'accumulation and accretion' as opposed to adaptation. The depiction of the interviewees' perspective - with respect to the perceived university level motivations towards improving student (and graduate) employability - becomes substantially more warranted and understandable when their views on static, or diminishing, resourcing and rising expectation are factored in.

This observation both aligns with and highlights the relevance of Grey's (2018) comments that academic staff should have accountability for the outcomes of their graduates. Grey

also stresses that academic staff who are tasked with producing results must also have key performance indicators that are linked to this expectation, thus emphasising that the imperative for academic staff to address employability should not simply add to their workload. Rather, he advocates that the expectations for staff performance and associated workload should be adjusted to include employability.

The evidence from this research aligns with evidence from the literature that academic staff at the University are experiencing work overload, and it adds to the literature through exploration of the individual, nuanced factors than can contribute to the persistence and normalisation of an unrealistic workload. The data indicates staff at the University are experiencing pressure to do more for less (insufficient funding), that they have insufficient time to mark assessments and provide meaningful feedback to students, and that they do not have the necessary time to establish and sustain consequential working partnerships with industry representatives. Further, there is evidence that the University's workload models must be adjusted to accommodate the time required for development of effective employability-based learning practices. This is especially valid given the view of staff in this research that revealed a perception that teaching time, and the time spent on development of learning activity and assessment, competes with the time available to conduct research.

In this research the notion of an inadequate workload model and the need for it to be updated to reflect the time required to develop innovative new curricula was inferred with references to the reward for research, versus the lack of reward for teaching. This view was also evidenced in overt comments about the need to focus on research to achieve performance goals and be eligible for promotion.

A final factor that must be seriously considered in terms of resourcing, is the current measure of success for teaching and course delivery. The academic staff in this study, are, on the whole, willing to try to address issues of employability because they have an inherent motivation to want to do what is best for the students, but they are already stretched beyond the limit in terms of workload, and, to some extent feel unsupported to innovate in the curriculum space due to the threat of poor SEC/SET results and the potential ramifications. The relationship between these two notions should not be overlooked. That is, innovation – using a new platform, creating new/challenging assessments, introducing

problem-based authentic learning experiences, involving industry in teaching and learning activity etc. – takes time to do well. If academic staff do introduce new employability-based assessments and related learning activity, but they do not have sufficient time to plan and prepare; to attend to student questions and concerns (which will naturally arise from an innovative approach); to provide sufficient feedback and support student learning, then the threat of poor teaching and course evaluation looms even larger as a potential inhibitor to staff willingness and motivation to embed EBL.

5.5 Implications for professional development for academic staff

This discussion point emerges directly from the data collected relevant to research question 2: what is the impact of the requirement for employability-based learning activity and assessment to be developed and delivered by 'non-expert' academic staff? It draws from the analysis of the data that evidences the extent to which academic staff feel competent and confident to develop and deliver employability-based learning, and, importantly, to overtly teach employability skills. It examines the impact of staff efficacy on the University's capacity to effectively deliver employability-based learning in the curriculum, and it contributes to the literature in that it extends the thinking beyond the categorisation of academic staff as 'expert' or 'non-expert' with respect to employability, to focus on the potential partnerships that might emerge to overcome this challenge. Finally, discussion in this section links directly to the conceptual model that underpinned the research, the HEA model of employability (Figure 4, p. 24), in that it aligns with the primary purpose of that model (to empower staff) and it highlights a key feature of that model - the need for inclusivity, engagement and collaboration at the broadest institutional level.

Collet, Hine and de Plessis (2015) observe that many academics are "uncomfortable teaching skills beyond their discipline-specific experience" (p. 533). This aligns with comment from other scholars (e.g. Rogers et al., 2016) and emphasises the need for cooperation and collaboration between academics (experts in their field) and learning and teaching consultants (experts in the scholarship of learning and teaching) as a critical factor for effectively embedding EBL. This was clearly evidenced in the current research with multiple comments from the interview participants that highlighted their desire for more

collaboration with respect to EBL. This data also supports evidence from the literature that some academic staff do consider themselves 'non-expert' in terms of employability-based learning, and it therefore highlights a need for increased and enhanced opportunities for staff to develop their skills in this area. An important observation on this point relates to the information presented in the literature review that suggests some academic staff might consider themselves 'non-expert' simply because they do not have expertise in the career development dimension of employability.

The need for professional development to enable academic staff to engage in the scholarship of learning and teaching is an important consideration for curriculum designers and university leaders. It emphasises the fundamental need not only to provide professional development opportunities for staff, but to empower them to attend by appropriately scheduling professional development opportunities that focus on the specific areas academics feel must be improved to help develop their confidence. This aligns with Grey's (2018) assertion that if academic staff are to be held accountable for the graduate outcomes of their students, then they must likewise be provided with appropriate opportunities to attend professional development so they have the knowledge and skills required to meet these objectives.

With the notions of 'inclusivity, engagement and collaboration' (from the HEA model of employability, Figure 4) in mind, the potential for an increasingly partnered approach to employability can be observed. This benefit will potentially emerge if learning and teaching specialists (including curriculum designers, blended learning advisors, educational designers, and employability consultants) can develop a greater understanding of the gaps in academics' knowledge of options for EBL - what to do, how to do it, how to assess it. With first-hand experience working collaboratively with a diverse range of academic staff, learning and teaching experts can potentially tailor training and resources to bridge the gaps and contribute positively to ongoing professional development for academic staff.

5.6 Implications for industry engagement

It is widely acknowledged that industry has a vital role to play to enhance graduate outcomes for students. The overt, and easily observable way this is achieved is usually an internship or work integrated learning model where students spend a portion of their time in the workplace (Mourshed et al., 2012). At times, industry involvement might also extend to representation on industry advisory boards, attendance at career nights as panel members or guest speakers. In the literature view in Chapter 2 it was evidenced that industry also have a vital role to play in course design and delivery and that industry professionals might also be able to contribute by providing assessments (scenario-based projects, for example) or assessing student work (Cox & King, 2006). The notion of a 'triple helix' relationship between universities, governments and industry was also explored, implying an interdependent relationship where these three key stakeholder groups work towards a common goal (Grotkowska et al., 2015).

Evidence from this research affirms the potential for an increased and more strategic approach to the partnerships between universities and industry to have substantial impact on employability-based learning initiatives. The observations from the participants in the study confirm that industry collaboration in course design is essential, and they likewise affirmed that there is significant room for improvement in the way in which this might be achieved. It has been noted previously in this discussion chapter that inadequate resourcing (time and funding) can impact an academic staff member's capacity to engage in a meaningful way with industry professionals. It should similarly now be noted that increasing capacity for staff to meaningfully engage with industry professionals is critical.

The role of industry and the potential for stronger relationships to have a significant impact on the delivery of EBL emerged from the study as a key consideration in two fundamental ways. The first is the potential for academic staff to act as a conduit to connect students with industry, which gives rise to a second 'triple helix' that is more concerned with the relationships between people – academics, professionals and students – working in sync towards a common goal (graduate employability). This notion is especially valid considering Grotkowska and colleagues' (2015) identification of a key developmental need, the creation

of “closer and more extensive cooperation with employers” (p. 878). They, like Cox and King (2006) expanded on the ‘traditional’ role for employers to provide WIL opportunities, to highlight the potential for employers to participate in curriculum formulation.

This, then, is the second fundamental way that interaction with industry can positively influence the approach to EBL to ensure the skills graduates are developing, and the ways in which they can apply them, align with employer expectations. This notion was evidenced in the research, with multiple participants emphasising their desire for more opportunity to engage with industry, and to involve industry in curriculum planning and course design.

5.7 Implications of student attitude

Literature presented in Chapter 2 highlights that while students are motivated to attend university to extend their potential for future success and enhance their employment prospects (Cox & King, 2006), it does not necessarily follow that they will welcome and actively seek out opportunities to develop their employability (e.g. Rich, 2016). The results of this research support these observations and suggest that students may, in fact, be apathetic with respect to their developing employability.

Knight and Yorke (2002) recommend that any pedagogic approach to employability must promote student involvement to create ownership over their own employment; Pegg et al. (2012) suggest a flexible, individualised approach to employability; and Yorke and Knight (2006) advocate for a scaffolded approach to employability that provides multiple opportunities for students to practice and apply their skills. A combination of these three core concepts, along with establishing shared agreement about what constitutes employability, is key to identifying, understanding and ultimately overcoming the potential impact of student negativity and apathy which will inhibit the successful implementation of employability-based initiatives.

Three key observations are offered in relation to this. First, there is potential for a ‘rebranded’ approach to employability-based learning to overcome the students’ potential lack of understanding of what is actually meant by the term. Second, scaffolding and

respecting employability throughout the program, with the support and active involvement of academic staff, may help 'normalise' employability in the mind of the student – thus alleviating a perceived sense of entitlement that they can 'get away' with an apathetic attitude. Third, acknowledging and respecting the diversity of students' backgrounds and experiences is key, thus flexibility in the types of employability-based learning assessments offered is essential. Students who have the opportunity to actively participate in the process and who can make informed choices about their own developmental needs are less likely to be apathetic.

The culmination of each of the above observations presents one final, but absolutely vital opportunity: to inspire, motivate and excite students. Overcoming the 'battle between apathy and excitement' (Kate) is crucial. If employability-based learning initiatives are to be successful, then excitement must win over apathy. The 'trick' here is to learn and fully appreciate what makes students excited, and the answer is inherent in what inspired them to come to university in the first place. It revolves around a truly integrated approach to employability (including future goals and getting a job), that is the responsibility of everyone, that is scaffolded and respected throughout the degree program, relevant to the students' individual goals and tailored to match their current situation, encapsulating the notion of flexibility.

5.8 Chapter Summary

In this chapter the implications of the results that emerged from the research were discussed, with specific reference to the ways in which the key ideas from this research affirm and/or extend the literature. The focus in the chapter was to identify key factors that must be considered by university leaders and curriculum designers before they progress to developing specific employability-based learning initiatives. At the broadest level, it was determined that establishing a shared understanding of what is meant by the concept and term 'employability' is vital. It was also observed that employability encompasses both discipline-specific skills and knowledge and 'portable' skills, as both are required for success in the contemporary workplace. This notion aligns with the next key theme covered in the chapter that affirmed that academic staff perception of university has not necessarily kept pace with the shift in the role of the contemporary university, and that this lack of accord

with respect to the purpose of university can potentially impact the ways in which employability is addressed in mainstream curriculum. Further to this is the potential impact of a lack of communication between university leaders and front-line (teaching) academics, whereby individual academics may be less motivated and less willing to embrace the University's objectives with respect to employability if they perceive that they are expected to act, when the University apparently is not. This notion is supported by the identified need for strong communication from university leaders to the 'general' academic population in a manner that will resonate with those academics.

Academic staff motivation and willingness to innovate in the curriculum space with respect to employability is also directly impacted by resourcing. Specifically, if they do not have the time to *effectively* address employability in the curriculum they may not be willing to embed new initiatives, especially in light of potentially negative or apathetic responses from students. The chapter explored the diverse factors that may impact student attitude, and the extent to which this influences academic staff decision-making, and it likewise explored staff efficacy and confidence, aligned with the vital need to plan for and provide ample opportunity for academic staff to attend relevant professional development. Finally, the potential for engagement with industry to positively impact curriculum-based employability initiatives was discussed, with specific reference to the need for a more strategic, partnered approach that allows industry partners to contribute to course and assessment design, in addition to 'traditional' ways they may support the development of students' employability (such as WIL).

Chapter 6: Conclusion

There is significant focus in many higher education institutions throughout Australia on the developmental need for a holistic, pedagogical approach to embedding employability skills (e.g. Jackson, 2014). It follows that there must likewise be a focus on upskilling academic staff and inspiring them to overtly address employability-based learning, and that this must also be associated with the redevelopment of key performance indicators for academics (e.g. Grey, 2018). Strategies to engage students in curriculum-based employability initiatives are also of key concern given the impact of student apathy and a sustained belief that employability skills should be separate to the main curriculum (e.g. Rae, 2007).

While these aspects of a successful approach to embedding EBL are critical, and should be acknowledged, this study has revealed factors that exist at a broader institutional or Group/Faculty level that have potential to influence the extent to which academics are willing and able to embed employability. In an environment where the purpose of higher education is still being debated by some, where resources are stretched, staff are overworked, and students have diverse needs and varying degrees of enthusiasm, focusing only on the specific, local-level activity (teaching and assessment) for embedded employability would seem to be an oversight.

Curriculum re-design is certainly fundamental to achieving the goals of the employability 'agenda' - for example, ensuring students are job capable, ready for the future of work, with relevant twenty-first century skills (e.g. Finkel, 2016; FYA, 2016). However, without an overt attempt to overcome the broader factors that impact staff attitude and potentially create negativity or doubt about employability initiatives, pouring effort, energy and (in some cases) resources into fully-fledged curriculum re-design seems futile.

The analysis of the data gathered in this research identified significant barriers, and some opportunities, from the perspective of the people on the front-line (academic staff) who are tasked with implementing the day-to-day actions required to successfully design and deliver employability-based learning and assessment. The identification of these barriers stimulated discussion about ways each barrier can be addressed, and the potential for each

opportunity to be capitalised. Such discussion can aid strategic decision-making across all hierarchical levels with a Higher Education institution with respect to employability, and a practical model to aid implementation was presented to facilitate and further this discussion.

Evaluating the extent to which the model presented in Figure 6: *A practical guide to assessing a university's strategic readiness to embed employability* is useful for university leaders and curriculum-designers presents an opportunity for future research. Further research avenues might also include an exploration of the attitudes of students and industry professionals to determine how closely their perception of the challenges and opportunities to embed employability align with those of the academic staff interviewed in this study, with the potential to update the model to encompass the perceptions of all stakeholders.

Further potential for future research stems from the fundamental nature of this research in that it focused on only two disciplines within one university. Future research might include a focus on staff perceptions across a broader discipline base at the University featured in this research, or across disciplines and across universities throughout Australia. The researcher's ultimate goal is to develop a set of core, easily understood and implemented curriculum-design principles for embedding employability in undergraduate STEM degrees. Exploring a range of stakeholder perceptions, identifying barriers and opportunities across a broad range of universities, and validating the effectiveness of the model presented in this thesis will enable this definitive research goal.

6.1 Limitations of the research

This research is a narrow study of employability within Science and Engineering degrees at a single university in South-East Queensland, Australia. The study is based on just twelve interviews with academic staff, and while it must be acknowledged that these staff wholeheartedly participated in the research process, expressing their genuine thoughts and unique perspectives about the research topic, it must also be acknowledged that their views are not generalisable. The views of these 12 research participants cannot and do not

represent the views of a wider participant pool. Further, the research participants were drawn from just two schools, within one Faculty Group at the University where the research was conducted. The academics interviewed could obviously only speak about their own experiences, relative to their role/s within their specific School. Their knowledge may not extend to cover all employability programs and initiatives in place at the University, thus this is another limitation of the research. The barriers and opportunities identified cannot be seen to represent all potential barriers or all potential opportunities.

There are also limitations associated with the largely homogenous participant pool in terms of their existing attitude towards employability and/or authentic learning and/or experiential learning, as noted earlier in the thesis. However, it should also be noted that the academic staff interviewed had significant variation in their experiences in industry, in terms of length and the types of roles held, and in their experiences within academia, including a very diverse range of leadership roles held (either currently or previously). This variability lends credence to the research, as does the fact that all staff interviewed were active, to a greater or lesser extent, in the employability space. The views encapsulated in the data and findings are therefore the views of engaged staff who know something about, and have had some experience of, employability.

Despite the limitations, this study has identified perceived barriers and opportunities for embedding employability that align with and extend the literature. A practical application of the findings has been presented with the potential for the model to influence strategic decision-making with respect to employability within the University in this research, and in other universities where similar challenges and opportunities may exist.

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Appendices

Appendix 1: Professional Learning for University Students (PLUS) framework

Student Lifecycle Stage	CAREER	ACADEMIC	PERSONAL
Transition In – Explore Your Options			
Know Yourself	Transferable Skills		
			Personal attributes
		Student Club (Identity)	
	Career Action Plan		Career Action Plan
Know Your Industry	Industry visit		
	Professional competencies		Professional competencies
	Informational Interview		Informational Interview
		Industry events	
Know Your Story	Resume		
	Get LinkedIn		Get LinkedIn
	Personal Brand		Personal Brand
	About Me (Portfolio)		About Me (Portfolio)
Transition Through – Get Real Experience			
Create Professional Connections	Industry Mentoring		Industry Mentoring
	Networking Techniques		Networking Techniques
	LinkedIn Groups		
	Professional Associations		
Enrich Your Experience	Leadership experiences		Leadership experiences
	Extra-curricular experiences		Extra-curricular experiences
		Become a volunteer	
		Global experiences	
Shape Your Future	Professional Ethics		
	Industry career events (on campus)		
	Work placement preparation		
	Placement Highlights		
Transition Out – Expand Your Prospects			
Evidence Your Skills	Track your Learning		
	One Minute Me		One Minute Me
	Professional Portfolio		
Raise the Stakes	Find a competition		
	Alumni Engagement		
	Entrepreneurship		
Take the Next Step	Application Toolkit		Application Toolkit
	Job Search Strategies		Job Search Strategies
	Interview Techniques		Interview Techniques
	Graduate Programs		
Graduation and Beyond: Engage			
Stay Connected	Alumni network - share your experiences (inform future curriculum)		
			Become a Mentor
	Ongoing career support		
Plan Ahead	Prepare for lifelong learning		Lifelong Learning
		Plan for future study / professional accreditation	

Appendix 2: Sample of email content sent to interview participants

Dear XXXX ,

I am writing to request your assistance with my Masters research project - "Exploring academic staff perceptions of employability based learning in undergraduate Science and Engineering degrees at Griffith University".

If you are available, I would be grateful if you would be willing to participate in a face-to-face interview of approximately 30 minutes duration.

I am conducting my research with ethical approval to complete a Masters of Education and Professional Studies Research, and you would therefore need to be willing provide consent for the data collected to be used in an academic thesis. Where possible this data will be de-identified, and if not possible, I will seek your permission before including the data in the paper.

I look forward to hearing from you.

Best wishes,
Gayle

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Appendix 3: Personal data questionnaire completed by each research participant

Your details
Title: _____ **Name**: _____
Age: □ 20 – 29 □ 30 – 39 □ 40 – 49 □ 50 – 59 □ 60 – 69 □ 70+ **Gender**: □ Male □ Female □ Other
Qualifications:
_____
Academic Level: □ Tutor□□ Lecturer □ Senior Lecturer □ Associate Professor □ Professor
On what basis are you employed? □ Full-time □ Part-time □ Sessional □ Casual
□ Continuing □ Contract

Career History
Have you previously worked in industry? □ Yes □ No
If yes, which industry/industries?
_____
Approximately how long do work in this industry?
_____
Briefly describe your role/s:
_____
_____
How long have you worked in Higher Education (HE)?
_____
How long have you worked at Griffith University?
_____
What roles have you held within HE (either at Griffith or elsewhere), excluding your current roles?
_____
_____

Current Role
What are your current roles? (e.g. course convenor, program director, retention coordinator, FYC)
_____
Which courses do you currently convene or teach into?
_____
Which programs are these courses associated with?
_____

Appendix 4: Research Ethics Information Sheet, Consent to Participate and Consent to be recorded.

Exploring academic staff perceptions of employability-based learning in undergraduate Science and Engineering degrees
RESEARCH INFORMATION SHEET
GU Ethics Ref No: 2018/210

Who is conducting the research?

Principal Investigator
Name: Professor David Geelan
Centre: Griffith School of Education and Professional Studies
Position: Deputy Head of School Learning and Teaching
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Associate Supervisor:
Name: Ruth McPhail
Centre: Department of Employment Relations and Human Resources (Griffith University)
Position: Head of Department

Associate Supervisor (External):
Name: Associate Professor Jessica Vanderlelie
University: La Trobe
Position: Pro Vice Chancellor (Student Success)

Project team:
Dr Wayne Hall
Centre: Griffith School of Engineering
Position: Deputy Head of School Learning and Teaching

Name: Ms. Gayle Brent
Student, Masters of Education and Professional Studies
Contact Email: g.brent@griffith.edu.au

Why is the research being conducted?
The purpose of this project is to investigate your understanding of employability within the context of your discipline and the courses you are currently teaching within the Bachelor of Engineering or the Bachelor of Science. You will also be asked about your current levels of confidence with respect to your ability to effectively embed and integrate employability-based learning with the disciplinary-based content being covered in your course.

What you will be asked to do
Should you agree to participate in this research, you will be asked to participate in one-to-one interviews with the researcher/s. The interview will take place at any stage of

the Trimester (the
information gathered is not specific to a particular time of the academic year).

The interview will take approximately 45 minutes. You will be identifiable to the researcher. Data will be de-identified where possible prior to publication. Where it may be possible for you to be identified (for example, by reference to the course/year level you are teaching) your consent will be obtained prior to publication.

The basis by which participants will be selected or screened
You have been invited to participate in this research as you are a current academic staff member in the School of Engineering and Built Environment or the School of Environment and Science.

The expected benefits of the research
By exploring staff perceptions of the challenges and opportunities to embed employability-based learning activities and assessment into the curriculum the university will gain a better understanding of how to implement employability curriculum initiatives that will prepare students for long-term career success. The research is expected to produce principles for embedding EBL that will help develop staff efficacy.

Risks to you
There are no foreseeable risks associated with participation in this research.

Your confidentiality
No personal identification information or information of a threatening nature will be requested. As required by Griffith University, all research data (survey responses and analysis) will be retained in a locked cabinet and/or a password protected electronic file at Griffith University for a period of five years before being destroyed.

Your participation is voluntary
Your participation in this research is entirely voluntary. You have the right to withdraw from this study at any time. Your withdrawal will not have any adverse impact. There will be no penalty
or loss of any benefits otherwise entitled to by refusing to participate.

Questions / further information
If you would like any further information about this research, or if you have any further questions regarding your participation, please contact any of the researchers using the details provided on the first page.

The ethical conduct of this research
The information sheet should indicate that Griffith University conducts research in accordance with the *National Statement on Ethical Conduct in Human Research*. If potential participants have any concerns or complaints about the ethical conduct of the research project they should contact the Manager, Research Ethics on 3735 4375 or **research-ethics@griffith.edu.au**.

Feedback

Overall findings of this research will be included in an academic thesis and may be presented in conference proceedings and or journal publications. You can also email the investigators conducting the research to request a summary of the results.

Privacy Statement

The conduct of this research involves the collection, access and/or use of your identified personal information. As outlined elsewhere in this information sheet, your identified personal information may appear in the publications/reports arising from this research. This is occurring with your consent. Any additional personal information collected is confidential and will not be disclosed to third parties without your consent, except to meet government, legal or other regulatory authority requirements. A de-identified copy of this data may be used for other research purposes including publishing openly (e.g. in an open access repository). However, your anonymity will at all times be safeguarded, except where you have consented otherwise. For further information consult the University's Privacy Plan at http://www.griffith.edu.au/about-griffith/plans-publications/griffith-university-privacy-plan or telephone (07) 3735 4375

Completion of the consent statement below and your participation in the interview will be taken as your consent to participate in the research.

Interview Consent Form

Research Project Title: Exploring academic staff perceptions of employability-based learning in undergraduate Science and Engineering degrees
Research Participant's Name: _____

The interview will take approximately 45 minutes. We don't anticipate that there are any risks associated with your participation, but you have the right to stop the interview or withdraw from the research at any time.

Thank you for agreeing to be interviewed as part of the above research project. Ethical procedures for academic research undertaken require that interviewees explicitly agree to being interviewed and how the information contained in their interview will be used.

This consent form is necessary for us to ensure that you understand the purpose of your involvement and that you agree to the conditions of your participation. Would you therefore read the accompanying information sheet and then sign this form to certify that you approve the following:

- the interview will be recorded and a transcript will be produced
- you will be sent the transcript and given the opportunity to correct any factual errors
- the transcript of the interview will be analysed by Gayle Brent as research investigator
- access to the interview transcript will be limited to Gayle Brent and academic colleagues and researchers with whom she might collaborate as part of the research process
- any summary interview content, or direct quotations from the interview, that are made available through academic publication or other academic outlets will be anonymized so that you cannot be identified, and care will be taken to ensure that other information in the interview that could identify yourself is not revealed
- the actual recording will be kept

Quotation Agreement

Your words may be quoted directly. With regard to being quoted please initial any of the following statements you agree with:

	I wish to review the notes, transcripts, or other data collected during the research pertaining to my participation.
	I agree to be quoted directly.
	I agree to be quoted directly if my name is not published and a made-up name (pseudonym) is used.
	I agree that the researchers may publish documents that contain quotations by me.

All or part of the content of your interview may be used:

- In academic papers, policy papers or news articles
- On our website and in other media that we may produce such as spoken presentations
- On other feedback events
- In an archive of the project as noted above.

By signing this form I agree that:

1. I am voluntarily taking part in this project. I understand that I don't have to take part, and I can stop the interview at any time;
2. The transcribed interview or extracts from it may be used as described above;
3. I have read the Information sheet;
4. I don't expect to receive any benefit or payment for my participation;
5. I can request a copy of the transcript of my interview and may make edits I feel necessary to ensure the effectiveness of any agreement made about confidentiality;
6. I have been able to ask any questions I might have, and I understand that I am free to contact the researcher with any questions I may have in the future.

_____

Printed Name

_____ _____

Participants Signature **Date**

_____ _____

Researchers Signature **Date**