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Developing Employability Attributes of Higher Education Project Management Graduates: A Scoping Review

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Abstract

Projects play a pivotal role in modern enterprises. Functional structures of organisations are being replaced by project-based organisations. Along with the growth in project management, the need for skilled project professionals is mounting for the successful execution of the projects. This reflects the importance of preparing project management graduates for complex project environments. Higher education institutions (HEIs) are responsible for preparing work-ready project management graduates so are responding by continually reviewing and developing effective project management courses. This scoping review focuses on how HEIs are addressing the employers' demand by preparing project management graduates for the industry.

Recent research on the work-readiness of project management graduates adds valuable contribution to the literature, however, there is a lack of a rounded overview which focuses on HEIs contribute to the development of employability attributes of project management graduates. Accordingly, this scoping review paper aims to explore the status quo of research on the employability of graduates within the context of project management education. More specifically, the study will capture and investigate the different approaches adopted by HEIs in developing work-ready project management graduates. The paper contributes to the literature by providing insights into project management graduates' job readiness in order to inform higher education institutions, policymakers and future research.

Keywords: Employability, Work-readiness, Higher education, Project management

Introduction

Employability is one of the most highly prioritised agenda items of contemporary higher education all over the world as HEIs are often under pressure to produce employable graduates (Bridgstock, 2009; Mok et al., 2016). In Australia, employed graduates are expected to contribute to the sustainable economic growth of the country (Smith et al., 2014). Simultaneously, the reason students make investments in education is for achieving the marketable set of skills (Saunders & Zuzel, 2010). Hence, HEIs have a responsibility to help students develop the appropriate set of skills, thus increasing their productivity and their earnings (Suleman, 2017).

The number of project-based operations has been increasing exponentially in recent years. It is anticipated that project-oriented organisations will require approximately 87.7 million project management professionals working in project management-oriented roles by 2027 (PMI, 2017). In addition, roughly 2.2 million project-oriented roles need to be filled by 2027 (PMI, 2017). With the increase in growth in project management jobs, most of the project practitioners are reaching retirement age. While this opens new avenues up for project professionals, the scarcity of qualified project practitioners might pose potential risks for projectised organization relying on those talents to implement strategic initiatives, drive change and deliver innovation. As a result, the potential talent gap may result in an approximate loss of around US$207.9 billion in GDP by 2027 in Canada, Australia, UAE, United States, China, Japan, India, United Kingdom, Brazil, Saudi Arabia and Germany (PMI, 2017). This reflects the importance of preparing project management graduates for the complexity of the project environment by HEIs (Borg & Scott-Young, 2020a).

The purpose of this scoping review paper is to examine HEIs' effort to prepare project management graduates for the world of project work. The rest of the paper is structured as follows: the theoretical underpinnings of the review, conceptual framework, definition of employability, graduate attributes of project management graduates, work-readiness of project management graduates, project managers' competencies and the role of universities in graduate work-readiness. Conclusion and future direction are discussed next.

Theoretical underpinnings

Students join HEIs not only to gain knowledge but to identify a career path and gain an understanding of professional culture and norms as part of their work readiness. HEIs are expected to develop graduates who possess the skills and attributes demanded by employers. As this review discusses the development of human capital, the paper is grounded on a combination of Becker's (1962) Human Capital theory and Gale and Shapley's (1962) Matching Theory.

Human Capital theory is a theory of earnings and was first developed by Becker and Mincer in 1962. According to Becker, the most crucial investment in human capital is education and training. Becker's (1975) Human Capital Theory proposes that the productivity of an individual is increased through the accumulation of knowledge during the education period which subsequently helps to improve their job performance (Becker, 1964). The core idea rests on the concept that individuals make investments in their education and training to achieve economic advantages. Becker perceives that academic attainment and economic gain share a proportional relationship. By participating in education and training, the graduates expect to open up better career development, broaden job opportunities and earn higher over time, thus contributing to the economic growth of the nation. Hence, HEIs should

produce graduates who add value to the economy of the labour market. Therefore, this review focuses on understanding project management graduates' required competencies and how they can be better prepared by HEIs so that graduates can contribute to the sustainable economic growth of the nation.

Equally this review adopted the lens of Matching Theory. Matching Theory focuses on the matching of two sides (Abdulkadiroglu & Sönmez, 2013). As outlined above, there are two sides to the discussion of project management graduates: their work-ready attributes and employers' demanded skills. It is only when HEIs align the graduate attributes to those demanded by employers, can project management graduates make a successful transition into the labour market. Therefore, this review considered the literature about how HEIs contribute to the work readiness of project management graduates and what employers' expectation of the graduates.

Conceptual framework

A conceptual framework provides an extensive understanding of a phenomenon or phenomena as a network, or "a plane," of interlinked concepts. A conceptual framework aims to achieve two objectives (1) offering a theoretical clarification around the research being investigated (2) providing the reader with a clear outline of the research objectives and how that will be obtained (King et al., 1994). The lens of this review paper is how HEIs can contribute to the development of employability skills in project management graduates. Figure 1 demonstrates a proposed conceptual framework for this review. The independent variable considered was HEIs. On other hand, the work-readiness of project management graduates was considered as a dependent variable. In this review, the role of HEIs is examined to develop work-ready attributes in project management graduates.

HEIs can take a range of initiatives to help develop work-ready competencies such as soft and technical skills. The design of new project management degrees and the inclusion of a range of activities may contribute to the preparedness of project management graduates. As proposed in Figure 1, project management graduates are highly unlikely to develop the demanded competencies and make a successful transition from universities to the world of work unless they are taught the skills and attributes required for the workplace. The authors of this review are interested in exploring what HEIs can propose to produce work-ready graduates by setting and mapping critical graduate attributes to their curriculum.

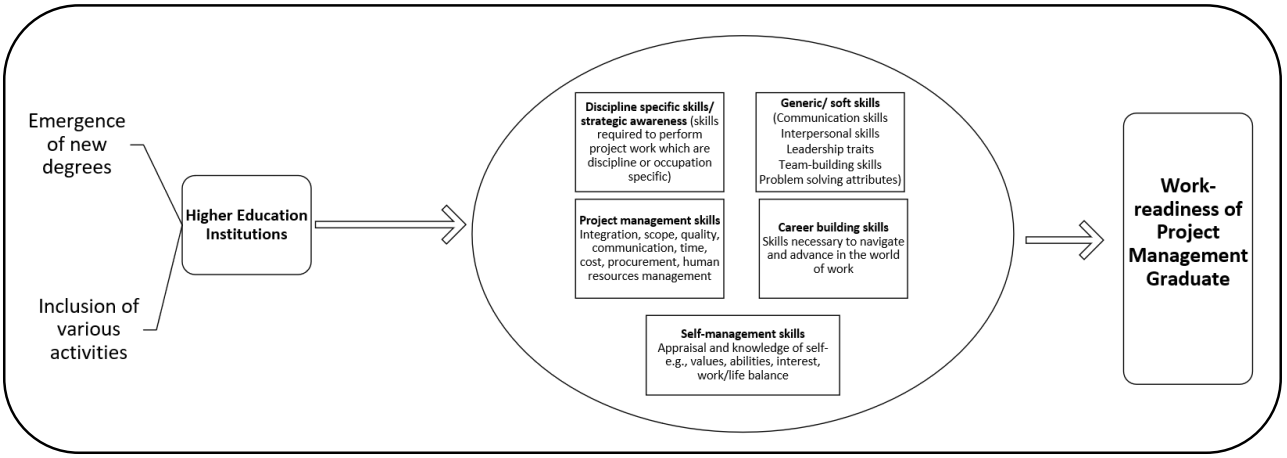

Figure 1: A proposed conceptual framework.

What is Employability?

Gazier first conceptualised employability in the early twentieth century. Henceforth, employability has been extensively discussed in the literature. A shift in the concept of employability was noticed from the 1940s to 1990s (Grazier, 1998). While higher education qualifications used to be considered a certain route to successful employment, the notion of graduate employability appears to change over time. In the contemporary world of work, graduates need to demonstrate their adaptability to changes and face countless challenges (Clarke, 2018; de Weert, 2007). Defining employability is complicated. Numerous scholars share the complexity involved in defining employability (Harvey, 2005; Holmes, 2006). Gazier (1998) described employability as a "fuzzy notion, often ill-defined and sometimes not defined at all" (p. 298) whereas employability is defined as a "confusing professional buzzword" by Thijssen et al. (2008).

The meaning of employability varies from one stage to another of a professional career. For higher education graduates, employability means finding a job or becoming employed whereas a person who is employed requires the capability of managing the ever-changing demands of the professional world and navigating successfully in the world of work to be sustainable in their employment (Nilsson, 2010). Although the meaning of employability is contextual, it can be approached through three perspectives in general (1) societal or national perspectives comprising of employment of society as a whole and economic health; (2) organisational perspectives referring to employees being capable of completing all tasks required (3) individualistic perspective comprising of an individual's ability to be sustainable in a job (Versloot et al., 1998).

On the other hand, employability can be defined as a collection of skills, attributes, and characteristics that an employee needs to demonstrate to a prospective employer (Lowden et al., 2011). Similarly, an individual's capacity to be able to maintain sustainable employment was defined as employability (Hillage & Pollard, 1998). In a similar vein, employability has been defined as "the ability to keep the job one has or to get the job one desires" by Rothwell and Arnold (2007, p.25). Additionally, Hogan et al. (2013) provided a similar definition of employability aimed at obtaining and keeping a job. A more precise definition was provided by Green et al. (2013) as "gaining, sustaining and progressing in employment" (p. 1). Similarly, Harvey (2005) disagreed that employability is limited to just getting a job. A range of literature mirrors Harvey's (2005) argument adding that employability is not only about acquiring cognitive skills (Yorke, 2006), but also a combination of obtaining qualifications, being work-ready, developing career and achieving critical and reflective skills (Harvey, 2005; Hillage & Pollard, 1998; Riebe et al., 2010). Along the same lines, York (2004) defined employability as a "set of achievements, skills, understandings and personal attributes – which makes graduates more likely to gain employment and be successful in their chosen occupations" (p. 410). A longer-term outlook of employability has shifted from an individual being able to secure a job to securing a range of attributes that make an individual attractive to multiple employers (Boden & Neveda, 2010). The recent emphasis has been driven by the change in employability policy, the increased emphasis given on lifetime job security, and skill-based and work-based solutions (Hillage & Pollard, 1998).

In Australia and the United Kingdom, the employment rate is dependent on the number of graduates who secure employment after six months of graduation (Department of Education, Science & Training, 2004). The government funding in the universities depends on the full-time employment of their graduates. However, the implementation of first-destination employment to assess the employability rate seems to be troublesome. The same notion was echoed by Dacre Pool and Sewell (2007). According to Dacre Pool and Sewell (2007), the concept of employability should not be assessed based on a graduate's ability to secure a position in the industry within a set time frame. Because some

graduates may not have got engaged in graduate-level jobs under the pressure of financial burden. Therefore, measuring graduate employability depending on securing a position within six months of graduation provided an indistinct indication of students' employability (Dacre Pool & Sewell, 2007). Harvey et al. (2002) also criticised the concept of measuring employability based on obtaining full-time employment within six months upon graduation noting that employability covers much more than just gaining employment upon graduation as there may be some graduates who may have joined a lower-level job due to financial burden.

Employability is not just about vocational and academic skills. Individuals need relevant and usable labour market information to help them make informed decisions about the options available to them. They may also need support as to how to access such information successfully and to interpret that information and turn it into intelligence. Finally, people also need opportunities to do things differently and to access relevant training (Hillage & Pollard, 1998). According to Small et al. (2018), the capacity to be self-reliant in navigating the labour market, utilising knowledge, individual skills and attributes, and adapting them to the employment context, showcasing them to employers, while taking into account external and other constraints are vitally important.

The extant literature has a number of employability frameworks such as The DOTS model (Decision learning, Opportunity awareness, Transition learning and Self-awareness), The USEM model (Understanding, Skills, Efficacy, Metacognition) and The CareerEDGE model (Career development learning, Experience, Degree subject knowledge, understanding and skills, Generic skills, Emotional intelligence). McQuaid and Lindsay (2005) also developed an employability framework that can be applied across various sectors. The framework was classified into individual factors, personal factors and external factors (McQuaid & Lindsay, 2005). Bennet et al. (1999) proposed a model consisting of five elements such as generic skills, disciplinary content knowledge, disciplinary skills, workplace awareness, and workplace experience. Another model was proposed by Bridgstock (2009) consisting of career management, employability skills, underpinning traits and dispositions, discipline-specific skills, generic skills, self-management skills and career-building skills. Bridgstock claimed Australian universities should recognise the significance of wider skill sets rather than narrow generic skills to effectively engage in graduate employability. Universities should not only map generic skills on the curriculum, but they should also involve the development and implementation of programs addressing career building and self-management skills, the partnership between faculties and career services. Clark (2018) demonstrated an integrated model of graduate employability comprised of human capital, social capital, individual behaviours and attributes that underpin an individual's perceived employability in a labour market context, and that, in combination, these influence employment outcomes. Hillage and Pollard (1998) proposed four main elements consisting of employability. Firstly, an individual's "employability assets" incorporates knowledge, skills and attitudes. Secondly, "deployment" involves career management skills. Thirdly, a person's "presentation" skills such as previous work experience, resume writing skills and techniques for handling interviews. The fourth, "personal circumstances" and "external constituents" include family accountability and available jobs in the industry respectively.

Although there are a wide range of frameworks present in the literature, the most comprehensive appears to be the CareerEDGE model. However, interpersonal attributes are absent in the CareerEDGE model and hence, should be added to the existing model. The model provides guidelines for HEIs regarding what should be included and considered in the curriculum. This model also allows all higher education stakeholders to explain each component of the model without clouding its significance. Through this model, key stakeholders, HEIs and employers can investigate their roles and contribution to graduate employability. Most importantly, this model is applicable for any stage of employability

such as someone looking for a job, thinking to change in a mid-life career or dealing with redundancy (Dacre Pool & Peter Sewell, 2007).

Taken together, the reviewed literature suggests that understanding employability is important for graduates' employment, but employability is not well defined. The constitute of employability is discursively formulated starting from defining and measuring to developing and transferring (Cranmer, 2006). While a number of definitions were provided by various scholars, the literature lacks an agreed definition (Griffiths et al. 2018; Small et al., 2018; Suleman, 2017; Tymon, 2013; Williams et al., 2016). Without a proper understanding of the concept of employability and a collaborative discussion among academics, employers, students and professional staff, it is quite impractical to understand how graduates should be prepared for the world of work. While a conjoint narrative among all key stakeholders is rudimentary, the shared narrative seems to be highly disregarded in practice. This circumstance would be like "starting a journey without knowing your final destination, or the route to get there". Williams et al. (2016) recognised the preponderance of a theoretical framework for employability. They conducted a systematic literature review on the concepts of employability. Their findings suggest that employability should be viewed through the lenses of identity, labour market demand, capital, career management, and signalling. Employability is therefore defined as a multi-faceted construct (Williams et al., 2016).

In view of the fact that there is a lack of harmony to define employability, Cole (2020) suggests that HEIs might not be able to address the employability agenda successfully. Cole and Hallett (2019) designed a taxonomy called 'Dimensions for Learning' to engage all stakeholders of HEIs. They argued that this taxonomy offers the potential to distort the narrow focus of employability and re-focus on a more holistic approach to employability.

While the notion of employability seems to be imprecise in the literature, it was apparent that HEIs are highly unlikely to confirm graduates' sustainable employability throughout their career as employability is not just about entering a job. The existing literature also questioned how employability is measured in countries such as Australia and the UK. In addition, without the collaboration of all stakeholders especially employers, it is arduous for universities to improve graduates' employability (Borg & Scott-Young, 2020; Cole, 2020). It appears that instead of focusing on enhancing employability, HEIs ought to focus on preparing graduates to be job-ready to help them enter into the industry. From the discussion above, it seems that graduates also have a part to play as Hillage and Pollard (1998) asserted stating it is an individual ability to maintain sustainable employment. To make graduates ready for the world of work, universities around the world should focus on a set of attributes namely 'Graduate Attributes'. As the scope of this review is to investigate HEIs' efforts regarding project management graduates' work-readiness, the graduate attributes of project management graduates are discussed in the following section.

Graduate attributes of project management graduates

Graduate attributes can be viewed as an array of skills and attributes that graduates are required to develop throughout their university life. These skills encompass both soft skills such as lifelong learning, generic, transferrable skills and disciplinary technical skills (Oliver, 2015). The Work-readiness of graduates is closely linked to the graduate attributes of a specific programme. The importance of graduate attributes in securing employment is paramount (Bennett et al. 2008). However, Hill et al. (2016) noted that graduate attributes can be viewed as more wide-ranging and

encircled than employability as graduate attributes help develop not only academic attributes but also career competencies and citizenship.

Small et al. (2018) stated that employability is one of the employers' most sought-after graduate outcomes. According to Mason et al. (2009), the work-readiness of graduates constitutes employability. However, there is a difference between work readiness and employability. Employability is more than just possessing a set of skills, knowledge and attributes as discussed in the previous section. Barrie (2004) established a research-based policy framework for graduate attributes. The framework entails information literacy, lifelong learning, scholarship, research and inquiry, ethical, social and professional understanding, personal and intellectual autonomy, global citizenship, and communication. Australia's Higher Education Standards Framework contends that "on completion of a course of study, students [must] have demonstrated the learning outcomes specified for the course of study, whether assessed at unit level, course level, or in combination. . . [and] the learning outcomes for a course (degree) must include generic skills important to employment and further study, and independent and critical thinking skills suitable for life-long learning" (Commonwealth of Australia, 2015).

The graduate attributes outlined by The University of Sydney, are related not only to the technical skills of graduates, but also additional skills such as research and inquiry, information literacy, personal and intellectual autonomy, communication, and ethical social and professional understandings (Cairns & Malloch, 2017). Primarily, there is remarkable consistency across the attributes emphasised by Australian tertiary education providers. Alongside discipline-specific knowledge, the most common graduate attributes mentioned were Critical thinking, Global citizenship, Teamwork, Independence, Problem-solving, Communication, and Information literacy (Oliver & de St Jorre, 2018). Osmani et al. (2015) conducted a literature review on graduate attributes and identified 53 graduate attributes. Of the 53 graduate attributes, leadership skills, teamwork, self-management creativity, technological skills, communication, interpersonal skills, problem-solving, and flexibility/ adaptability were prevalent across the studies explored.

What can be found from reviewing the extant literature around graduate attributes is that graduate attributes are discussed in general in the literature across HEIs. However, the focus of this review was to identify the graduate attributes of project management graduates in particular, which seems to be a scantly researched area.

Work-readiness of project management graduates

While graduate attributes are generally explored in the literature, there is a dearth of research that adopted the concept of work readiness in the context of project management. Work-readiness can be viewed as graduate readiness to join the workforce (Jollands et al., 2012). They defined work readiness as graduates' generic attributes to apply the technical competencies. Work readiness has increasingly been critical to employers while recruiting graduates as it is considered as a construct of entry-level jobs and indicates graduate success at the workplace, their job performance and potential career progression (Caballero & Walker, 2010). Unfortunately, the research suggests that some graduates fall below the expectation of employers in entry-level jobs (Caballero & Walker, 2010). This review highlights the work-readiness of project management graduates. Recently work readiness of project management graduates has been on spotlight (Borg et al., 2017a, Borg et al., 2018; Borg & Scott-Young, 2020a; Borg & Scott-Young, 2020b).

Borg and Scott-Young (2020a) defined the work readiness of project management graduates as a combination of values, skills, behaviour and discipline-specific skills. They defined the work readiness of a project management graduate as being able to make a successful transition from their degree programmes to the world of work. Recently, Borg and Scott-Young (2020b) explored employers' perspectives of work readiness in the context of the construction industry and found that employers value passion, empathic communication and construction knowledge of project management graduates. However, the findings were based on the construction industry. The results might be different in another context which limits its generalisation.

To stress the importance of project management graduates' preparedness, it is timely to discuss the concept of "Accidental Profession" in project management which persists in the literature. While HEIs emphasise and focus on the work readiness of project management graduates, project management is often viewed as an 'accidental profession' because most project managers begin their career without an aim to become a project manager or completing formal training. Several people are propelled into the profession and manage the projects by luck, persistence and dedication. The role of a project manager evolves over time and through the accumulation of experience (Richardson et al., 2015). While the accidental profession is very common in the public sector (Darrell et al., 2010), Borg and Scott-Young (2020a) argued that accidental profession is not necessarily true for project practitioners or young individuals in the project workforce.

Similarly, Australian Institute of Project Management (AIPM) and KPMG (2018, p. 16) claimed that "Accidental project managers are not the right solution for managing important investments". Borg and Scott-Young (2020a) argued project managers as being 'accidental' are not able to achieve the best career path into the project management profession. Hence, instead of relying on the concept of 'accidental profession', project practitioners should aim for project management preparation to make a successful step towards project management (Borg & Scott-Young, 2020a). To eliminate the word 'accidental' from the career pathway of project managers, tertiary undergraduate education has started to emerge for project practitioners (Ramazani & Jergeas, 2015). A 'chosen' career path in project management poses a unique challenge to higher education stakeholders - the work readiness of project management graduates (Borg & Scott-Young, 2020a). To get ready for the world of work, project management graduates should possess a set of skills including transferable attributes, behaviours, and skills required for the successful transition into the workforce (Verma et al., 2018). Hence, HEIs should focus on developing work ready attributes in project management graduates. Before examining HEIs' effort to make project management graduates job-ready, it is critical to have a rounded overview of the competencies of project managers required for the ever-challenging environment of project management.

Competencies of project managers

For the successful execution of projects, one of the critical factors is the competencies of project managers (Crawford, 2000). The competencies of project managers have been discussed extensively in the literature across disciplines (Ahsan et al., 2013; Alvarenga et al., 2018; Clarke, 2010; Dainty, de Araújo & Pedron, 2015; Dziekoński, 2017; Fisher, 2011; Keil et al., 2013; Liikamaa; 2015; Moradi et al., 2020; Müller & Turner, 2007; Müller & Turner, 2010; Napier et al., 2009; Nijhuis et al., 2018; Patanakul & Milosevic, 2008; Ramazani & Jergeas, 2015; Shah & Prakash, 2017; Shenhar, 2001; Skulmoski & Hartman, 2010; Stevenson & Starkweather, 2009; Sunindijo & Zou, 2011; Thomas & Mengel, 2008; Vaz-Serra & Mitcheltree, 2020).

The extant literature seems to focus on project managers' competencies in two distinct industries, Information Technology (IT) and Construction. In the following sections, IT and construction project managers' competencies are presented.

IT project managers' competencies

The information technology (IT) project managers' (PM) competencies were studied by Napier et al. (2009). The required skills involved leadership, communication, general management, planning and control, systems development, personal integrity, problem-solving, client management, personal integrity and team development (Napier et al., 2009). In a similar vein, Stevenson and Starkweather (2009) identified the top five IT/PM skills which were verbal communication skills, listening skills, leadership, scope management and project planning. A closer look at the skills identified by Stevenson and Starkweather (2009) reveals that all of the five skills are soft in nature. Similarly, the technical skills were only considered "somewhat important" by the participants in the study of Stevenson and Starkweather (2009). The findings of Stevenson and Starkweather's (2009) study mirror those of Napier et al.'s (2007) study.

The competencies of IT project managers were also the focal point of Keli et al.'s (2013) research. While the findings of this study demonstrated a number of similarities to the results of Napier et al.'s (2009) and Stevenson and Starkweather's (2009) studies, some variances appeared. Keil, Lee, and Deng (2013) identified 19 critical attributes deemed essential for IT project managers. In line with what previously stated in the above-mentioned studies, along with communication, teambuilding, leadership, and quality, listening and scope management were highlighted as essential skills.

To identify the most relevant competencies in IT project managers required for IT project success, de Araújo and Pedron (2015) carried out a qualitative study through an exploratory approach. The most relevant competencies found were team management, business domain knowledge, communication, project management and people skills. The technical skills of project managers seem to be traditionally accepted for IT project success. However, the existing literature seems to include evidence of achieving project success through behavioural, business and managerial competencies which are aligned with the findings of Stevenson and Starkweather's (2009) study.

While Napier et al. (2009), Stevenson and Starkweather (2009) and de Araújo and Pedron (2015) examined IT project managers' competencies regardless of soft and technical skills, Skulmoski and Hartman (2010) analysed soft competencies of Information System (IS) project managers. Skulmoski and Hartman (2010) classified soft skills as per the project life cycle. In the initiation and planning phases, the most important competency was communication (questioning/generating feedback and listening skills). However, in the implementation phase, it was considered important for project managers to possess open communication skill as a critical competency followed by collaboration. Project managers should not only possess communication and collaboration competencies, but also own persuasiveness/marketing/selling, listening skills, vision-oriented/articulate the business problem, and consensus-building. The planning phase requires project managers to have skills and knowledge in consensus building and technical skills/theoretical knowledge. The ability to get along/team player, results-orientation, and truthful/honest were also identified as important. In the closing phase, the required competencies were writing skills, share information and credit, pride in workmanship/quality and truthful/honest (Skulmoski & Hartman, 2010).

This evidence indicates that IT project managers require a wide range of soft skills alongside their technical ones for the successful execution of IT projects. Employers expect graduates to be able to demonstrate soft skills at the workplace. The authors of this review are interested in investigating whether the value of soft skills is different in the construction industry. Hence, the following section discusses the required competencies of project managers in the construction industry.

Construction project managers' competencies

A plethora of research investigated the required competencies of construction project managers. Patanakul and Milosevic (2008) identified the competencies required for managing multiple projects. The competencies were multitasking, interdependency management, simultaneous team management, organisational experience and interproject process (Patanakul & Milosevic, 2008). A strong positive correlation between construction project managers' emotional intelligence (EI) and project performance was observed (Clarke, 2010; Zhang & Fan, 2013). The competency profile of 'superior' project managers in the construction industry was explored (Dainty et al., 2004). The superior construction managers exhibited a higher level of initiative, directiveness, achievement orientation; impact and influence; self-control; focus on clients' needs; information seeking; teamwork and cooperation; conceptual thinking; analytical thinking; team leadership; and flexibility than average managers (Dainty et al., 2004). The findings were in alignment with the findings of Zhang et al.'s (2013) study. The study examined construction project managers' social competencies required for Chinese construction projects. They attempted to construct a social competency model for project managers working within the construction industry in China. The model consists of four dimensions such as working with others, stakeholder management, leading others and social awareness. Working with others includes teamwork, conflict management and cooperation; stakeholder management includes impact and influence and change management; leading others involves interpersonal leadership and inspirational understanding; social awareness encompasses personal relationship and organisational awareness (Zhang et al., 2012).

In a similar vein, the ten core competencies of project managers require for their superior performance comprised of relationship building, group capabilities, leveraging diversity, achievement orientation, maintaining order, stress tolerance (management), leadership, language proficiency, flexibility and understanding others (Moradi et al., 2020). This is consistent with conclusions by Fisher (2011) and Dziekoński (2017). To be an effective project manager, one should have attributes such as understanding of behavioural characteristics, leading others, influencing others, authentizotic behaviour, conflict management and cultural awareness (Fisher, 2011). Emotional intelligence, basic managerial skills, formal skills and interpersonal abilities supporting managerial skills were identified as four factors affecting the construction project managers' competency (Dziekoński, 2017). Alvarenga et al. (2018) revealed the most important competencies to project success. They were communication, commitment and leadership appeared as the top three aspects. However, the study did not mention the industry of surveyed project managers.

On a similar line, Edum-Fotwe and McCaffer (2000) acknowledged that a project manager's role is not limited to the conventional project constraints such as time, cost and scope. While this study focused on the construction industry only, the results might be different in other industries. To provide a comprehensive overview of project managers' competencies, Moradi et al. (2020) conducted a rounded literature review on project managers' competencies published between 1959 and 2018. It was apparent that the focus of existing literature was largely on construction, IT and engineering

industries. Moradi et al. (2020) found that communication, leadership, teamwork and cooperation, flexibility, problem-solving, goal orientation, developing others, impact and influence, stakeholder management, cost management and resource management are project managers' eleven key competencies. These competencies contributed significantly to the project success than any other competencies (Moradi et al., 2020). However, project managers' competencies are not identical in an array of project types (Müller & Turner, 2010; Shenhar, 2001).

Inspired by Shenhar's (2001) and Müller and Turner's (2007, 2010) studies, Moradi et al. (2019) investigated project managers' competencies of varying projects and sizes. The analysis showed that construction project managers require the largest number of competencies than those of engineering projects, IT projects, organisational change projects, metallurgical projects, international NGO projects and public service projects.

Project managers' competencies as per job advertisements

The literature brings insights into the competencies of project managers presented in job advertisements. do Vale et al. (2018) conducted a systematic literature review on job advertisements based on project managers' competencies. They categorised the competencies into four categories including behavioral, technical or specific, management and contextual. One of the limitations of the study was that the research was constrained to information extracted from only five job sites in Brazil. Ahsan et al. (2013) and Chipulu et al. (2013) also investigated the competencies of project manager published in job advertisements. Chipulu et al. (2013) investigated 2,306 project management job advertisements in Asian countries, the United Kingdom and the United States of America. Ahsan et al. (2013) investigated 762 job adverts in the Australian and New Zealand market. The results of both studies demonstrated that employers put more emphasis on soft skills (61.68% of advertisement) and disciplinary technical skills than project management expertise. The findings were in contrast with the results of a study by do Vale et al. (2018). In the study of do Vale et al. (2018), behavioural competencies were discussed in 27% of the job advertisements, whereas technical or specific competencies were highlighted in 35% of the job advertisements. The difference in the findings may be attributed to the geographical locations of the studies.

The importance of industry-specific skills was dominated by soft skills in the study of Chipulu et al. (2013). Soft skills were more important than project management hard skills in the financial, business, engineering, construction, manufacturing and the information and communications technology (ICT) sector than in other industries such as media and education (Chipulu et al., 2013). The engineering, construction and ICT industries stressed disciplinary technical skills and soft skills over project management hard skills (Chipulu et al., 2013), whereas disciplinary technical skills and soft skills along with project management hard skills were considered important in the construction, engineering and health care sector (Ahsan et al., 2013).

It is apparent from the discussion that soft skills, disciplinary technical skills and project management hard skills are paramount to different extents across industries. Therefore, it shows that despite a difference in how important soft skills, disciplinary technical skills and project management hard skills are, they are important to some degree across all industries. Although a wide range of research has been conducted on the competencies of project managers and employers' expectations of project managers competencies, the findings of these studies were not discussed in the light of the work-readiness of young project professionals.

To be prepared for the complexity of the project environment, technical knowledge is not enough for labelling a graduate work ready. As established previously, project management graduates also need to develop soft skills in their skillset. In the following section, the university's contribution to the development of work-ready attributes of project management graduates is discussed.

University's responsibility of graduates' work-readiness

As previously established, HEIs are under scrutiny to develop work-ready attributes in project management graduates. Employers hold HEIs responsible for the under-preparedness of the project management graduates as project management graduates lack employers' demanded skills. Although graduates are well trained in technical knowledge, they lack soft and interpersonal skills (Cavanagh et al., 2015). Project management involves numerous roles and responsibilities (Pant & Baroudi, 2008). HEIs must have curriculum content and activities pertaining to these roles and responsibilities reflected in educational programs (Pant & Baroudi, 2008). Work-ready attributes as discussed above are not only technical skills but also transferrable competencies (Borg & Scott-Young, 2020a).

Thomas and Mengel (2008) argued that current project management education is not suited at all to prepare project managers for managing projects (Córdoba & Piki, 2012). The focus of project management education seems to be on the technical aspects of project management (Atkinson, 1997; Pant & Baroudi, 2008; Thomas & Mengel, 2008). Whitty (2005) stresses that 'projects are simply a synthesis of human sensations and expectations about how multiple resources are to be used' (p. 577). Universities should design curriculum in a manner that project management graduates are equipped with the work-readiness attributes (Cavanagh et al., 2015).

According to the Project Management Institute Global Accreditation Center (GAC) (2016), universities should provide academic curricula that integrate practice and theory at different degree levels. Programs should be innovative and forward-thinking which will prepare students to be more effective and professionals. Universities should focus on three core areas of technical expertise, professional behaviour, strategic awareness. Technical expertise comprises managing projects within constraints regarding professional standards and guides. Stakeholder engagement, leadership, communication and teamwork are part of professional behaviour. Strategic awareness incorporates contextual awareness and knowledge of strategic and operational drivers (Handbook of Accreditation for Academic Degrees and Awards, 2016).

In order to respond to employers' demands, universities have adopted many approaches to developing graduate employability by teaching and developing soft skills (Mason et al., 2009). The literature includes descriptions of the teaching of group activities (Shah, 2013); Project Management Professional Development Programme (PMPDP) (Alam et al., 2010); Outdoor Adventure Education (OAE) (Cooley et al., 2015); group assessments (Ballantine & McCourt Larres, 2007; Huff, 2014; Zou & Darvish, 2011); Project-Based Learning (PBL) (Ballantine & McCourt Larres, 2007; Córdoba & Piki, 2012); curriculum design (Ritter et al., 2017; Sin & Amaral, 2016); and finally an attention to transferrable skills, and work internships.

In an attempt to respond to whether project management programs are preparing project management graduates for the labour market, Thomas and Mengel (2008) investigated the curriculum of 15 universities and colleges that offered project management programs. Of the 15 programs, ten were offered at the master's level (MBA, MA, MSc, etc.) whilst the other five were offered at certificate level or doctoral programs. Eight programs had detailed discussion about PMBOK knowledge areas

and included PMP certification preparation (Thomas & Mengel, 2008). Some providers offered advanced training even at the graduate level which focused on a PMBOK Guide based education and professional certification. Of the 15 studied curriculums, only two providers explicitly went beyond the PMBOK Guide. There is a clear gap between what universities are offering and what graduates are required to possess to tackle the uncertainty of the project environment (Thomas & Mengel, 2008).

The development of the Bachelor of Project Management degree is a new development in undergraduate tertiary education (Borg & Scott-Young, 2020a; Nijhuis et al., 2018). All over the world, 291 education providers offer bachelor's degree in project management (Study Portal, 2020). With an aim to identify whether the learning outcomes of bachelor project management degrees are in line with the employers' demanded soft skills, Borg and Scott-Young (2020a) investigated the work-ready attributes of 12 Australian bachelor's degree programs. The most frequently mentioned learning outcomes were knowledge acquisition, respect, and work ethic (values); being globally aware, collaborative, and self-aware (behaviours); and being critical, literate, and good at problem-solving (skills). The three highest-ranking 'values' were knowledge acquisition, respect, and work ethic. The top three 'behaviours' were globally aware, collaborative, and self-aware, while the top three work-ready 'skills' were critical analysis, literacy, and problem-solving (Borg & Scott-Young, 2020a). The findings suggest that graduate attributes are being included in university curricula. However, there is a further need to investigate the effectiveness of the Bachelor of Project Management degrees with regard to the development of the work-ready attributes in young project practitioners. In addition, the findings are geographically limited to Australia and cannot be generalised to all Project Management degrees. Further studies are required to see how well these project management graduates completing bachelor's in project management meet the expectations of employers.

While universities are slowly responding to the identified needs of employers to prepare graduates for the labour market, it is critical to know how employers regard the efforts higher education is making towards ensuring project management graduates' work readiness. Construction employers acknowledged that graduates completing the Bachelor of Construction Project Management possess strong work-ready attributes both in technical and soft or interpersonal skills (Borg & Scott-Young, 2020b). Employers believed that these graduates are better prepared for verbal communication skills, professional presentation and technological use. However, graduates were found to be less confident in seeking help, acting to confrontational situations, professional writing ability and applying basic construction knowledge (Borg & Scott-Young, 2020b). It is encouraging to see that employers understand their involvement as an important component in graduates' work preparedness. Employers can provide newly recruited project practitioners with mentoring and training programmes (Borg & Scott-Young, 2020). While employers can contribute to graduates' work readiness, universities should focus more on industry engagement, embedded practice, literacy lessons and career coaching (Borg & Scott-Young, 2020b, p. 1372). There was also discord found between employers' expectations and university preparation. While employers stressed work experience when it comes to hiring project management graduates, Bachelor of Project Management programmes focused less on graduates' work experience and internship programs (Borg and Scott-Young, 2020b).

The employers in the study of Borg and Scott-Young (2020b) also highlighted the importance of collaboration between employers and universities. It is therefore essential that creating "shared value" is established among stakeholders. Borg et al., (2019) emphasised a close collaboration among all stakeholders and asserted that it "involves a major (but necessary) departure from the traditional educator-only approach to curricula design" (p. 59). An open discussion between universities and employers is encouraged to better prepare project practitioners. While the findings cannot be

generalised in another industry and to other employers, the results can be considered as a starting point for further investigation to apply to another industry.

Discussion

It was proposed in the conceptual framework (Figure 1) that HEIs can contribute to the work-readiness of project management graduates through developing project management degrees specific to project management (such as Bachelor of Project Management) and designing a range of group work and project-based learning in the curriculum. Project management graduates' work-readiness is not a mere accumulation of technical and subject-specific skills but a balanced mixture of soft and technical skills.

The reviewed literature also indicates that it is impractical for HEIs to confirm graduates work-readiness by themselves. Employers may play a part to develop a shared responsibility for better prepared project management graduates. Both universities and employers can work together to develop required competencies in graduates. Once graduates enter the job industry, employers can provide mentoring and training programs for professional and continuous development. Only when all key stakeholders hold accountability for developing demanded competencies in project management graduates, will project management graduates be appropriately prepared for the labour market. Hence, the modified conceptual framework is presented in Figure 2.

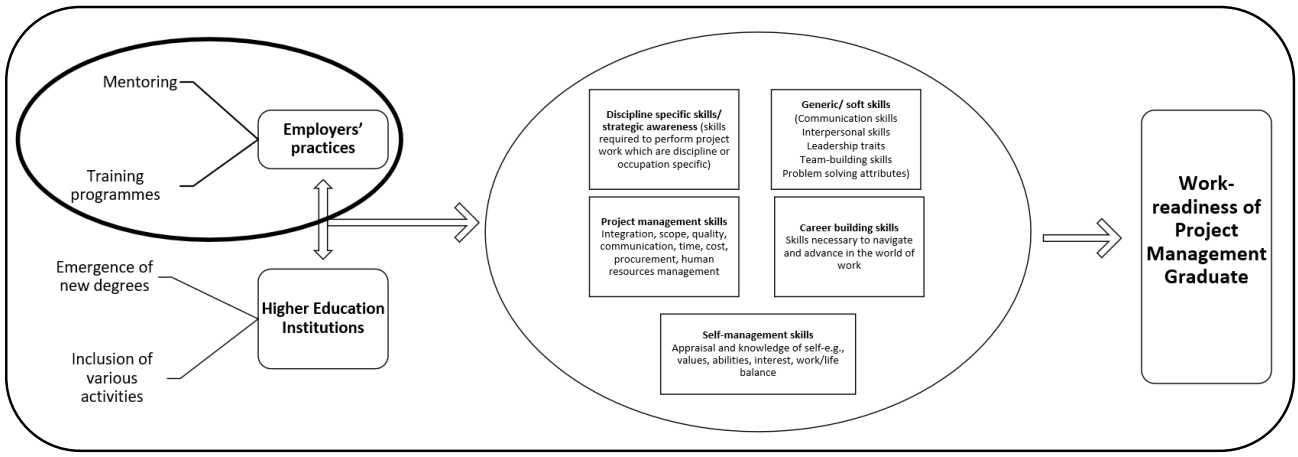

Figure 2: The modified conceptual framework

Conclusion

The aim of the scoping review was to investigate the role of HEIs to develop work-ready attributes in project management graduates, thus contributing to their employability. While there is no agreed definition around employability, it was established that it is not a mere accumulation of technical and generic skills. The employability of project management graduates is multi-dimensional. Therefore, it is impractical to expect that HEIs can ensure graduates' absolute employability. However, HEIs can contribute to one aspect of employability: the work-readiness of project management graduates. The reviewed literature indicates that project management graduates' work readiness encompasses the accumulation of both soft and technical skills. In recent years, HEIs are being put under pressure to enhance project management graduates' work readiness to contribute to a sustainable economy. The

literature illuminates that HEIs are slowly making progress in developing work-ready attributes in project management graduates and helping them make a successful transition into the labour market. The new emergence of the Bachelor of Project Management is a recent invention. The conclusion of this review shows alignment with the 'Human Capital Theory' which posits that students invest in higher education to hone their employability skills. While project management employers seem to be satisfied with the preparedness of project management graduates, there are still some elements such as poor quality of graduates' writing and their lack of basic construction knowledge which are not aligned with their expectations. Looking at this result through the lens of Matching theory, it can be inferred that there are still areas for improvement. Higher education providers need to maintain their consistent effort to develop employable project management graduates to tackle complex and dynamic project environment. To improve work readiness and employability of project management graduates, a partnership and open dialogue is necessary between universities and employers to improve the work readiness and employability of project management graduates.

The profusion of research in employability is evident in the extant literature. However, what constitutes project management graduates' employability seems to be scarcely discussed. Future research might shed light on this area. As discussed in this paper, the work-readiness of project management graduates has been underscored recently in the literature. The studies limit the generalisation of the findings as they were based on the construction industry. As many universities around the world offer Bachelor degree programs in project management, their graduate attributes will be able to be scrutinised to investigate the alignment with employers' demanded skills and attributes. Subsequently, future research might seek opinions from employers beyond those of the construction industry to explore their satisfaction around project management graduates' preparedness. Additionally, employers advocated their contribution to making project management graduates more job ready. There is a dearth of research investigating the initiative which should be taken by employers. Further studies might explore this narrowly researched area.

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