Preparing graduates for work readiness

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Introduction

The contribution of this special issue

The articles included in this special issue cover a range of topics centred on academic and practitioner discussion of graduate work readiness (GWR) from both an international and stakeholder perspective. Individually and collectively the articles provide insight, opportunities for reflection and areas for further discussion as solutions are sought to address the graduate skills gap and a young adults’ preparedness for the labour market.

The paper by Winterton J.C.A. and Turner J.J. on “Preparing graduates for work readiness: an overview and agenda” aims to understand GWR from the perspective of stakeholders. Using a critical review of the multidisciplinary themes to emerge from the literature and in an international context, the research provides insight into the graduate relationship with the labour market. The implications of the research are that stakeholder perspectives have to be reconciled, with the identified parties (universities, governments, businesses and students) moving forward together on an agreed agenda to ensure an appropriate and effective transition for graduates into employment.

The paper by Jabarullah N.H. and Hussain H.I. on “The effectiveness of problem-based learning in technical and vocational education in Malaysia” investigates the impact on the learning experience of engineering students when a university embeds problem-based learning (PBL) into the curriculum. The research revealed that students on the higher technical and vocational education and training programme responded well to PBL, with improved performance in written and lab-based assessments. The findings suggest that those students enrolled on practical, hands-on programmes and who engage with applied learning benefit the most from PBL.

The paper by Prikshat V., Kumar S. and Nankervis A. on “Work-readiness integrated competence model: Conceptualisation and scale development” constructed a 53-item work-readiness integrated competence model based on the stakeholder perspectives of HR professionals and managers across seven Asia-Pacific countries. The resultant model, containing four dimensions and ten sub-dimensions associated to GWR, is intended to inform debate around GWR and provide an appropriate scale to measure it.

The paper by Teng W., Ma C., Pahlevansharif S. and Turner J.J., on “Graduate readiness for the employment market of the 4th industrial revolution: the development of soft employability skills” examines Chinese and Malaysian student perspectives on the soft employability skills they develop during their time at university and their preparedness for the future employment market. The research indicates that the curriculum of the Malaysian university was the most effective at engendering soft employability skills, better preparing students for the workplace. This is despite the fact that the institutions in China and Malaysia both embedded business engagement into their respective curriculum. Such findings provided insight into the relationship between Chinese educational culture and graduate readiness for the disruptive labour market.

The paper by Wrye B., Chafin C. and Higginbotham C. on “Creating a win-win: designing and implementing mutually beneficial collaborations between community organisations and academic programs” explores how a university/community partnership has successfully embedded three complimentary pedagogical methodologies into an educational curriculum to promote student-centred learning within an experiential framework. The research indicates that the pedagogies of internships, service learning and project-based learning taken collectively provide mutual benefits for stakeholders, with
students in particularly emerging from the experience better prepared for graduate employment. Recommendations are proposed to enable other education providers navigate their own implementation of similar methodological approaches.

The paper by Baird A.M. and Parayitam S. on “Employers’ ratings of importance of skills and competencies college graduates need to get hired: evidence from the New England region of USA” investigates the skills and competencies employers look for when hiring graduates. In a response to identify the graduate skills gap, the research revealed from a scale of 21 skills, those considered the most important to employers which has clear implications for education providers. Identifying the employers need for critical thinking, problem solving and listening indicates how the tertiary learning environment has to reflect on the best way forward to create suitably job ready graduates.

The paper by Alvarez Sainz M., Ferrero A.M. and Ugidos A. on “Time management: skills to learn and put into practice” provides insight into students’ relationship with time management and the consequences for graduate employment preparedness. The research revealed that perhaps as a result of universities modular-based curriculum, students are more comfortable with short-term planning but lack the appropriate habits and attitudes for the longer-term. To address the issues raised by the research, recommendations are proposed to encourage students to make better use of their time and better prepare them for the world of work.

Jason J. Turner
Asia Pacific Institute of Information Technology, Kuala Lumpur, Malaysia, and
Jonathan Winterton
Department of Management, Taylor’s University, Subang Jaya, Malaysia
Preparing graduates for work readiness: an overview and agenda

Jonathan Winterton
Department of Management, Taylor’s University, Subang Jaya, Malaysia, and
Jason J. Turner
Asia Pacific Graduate School of Business, Asia Pacific University of Technology & Innovation, Kuala Lumpur, Malaysia

Abstract

Purpose – The purpose of this paper is to understand the concept of graduate work readiness (GWR) from a stakeholder perspective. The research attempts to pull together the various multidisciplinary themes from the literature into a comprehensive analysis of the relationship between graduates and the labour market, considering the international dimension of what is a global phenomenon.

Design/methodology/approach – The critical review is divided into four distinct sections, the first is to contextualise the concept of GWR and graduate employability taking into account recent academic discussion, particularly in the EU and ASEAN; second, to explore the different perspectives of stakeholders in the “triple helix” of universities, governments and the corporate world; third, critically to assess the arguments that educational provision is poorly aligned with labour market needs; and finally, to investigate the implications of the fourth industrial revolution for graduate jobs and skills and propose an agenda for future research.

Findings – Despite the apparent consensus between stakeholders over the central importance of graduate employability, there is considerable diversity in how each imagines GWR is best assured.

Research limitations/implications – Any review is limited by the extant literature and whilst it is not uncommon that most research has been done in North America, Western Europe and Australasia, this is a serious limitation. GWR is a global concern and this review shows the need for more research that extends beyond the dominant geographical focus and its attendant paradigms. The implication is that geography is important and local research is needed to develop solutions that fit specific cultural, economic and institutional contexts.

Practical implications – The paper highlights the need to reconcile different stakeholder perspectives on GWR and ensure that they work together on shared agendas to improve graduate transition to the labour market. At the same time, the profound changes being brought about by the fourth industrial revolution suggest that more attention should be paid to the employability of existing employees.

Originality/value – This review should prove useful to both academics and practitioners because it emphasises the need to treat GWR as a concept that varies according to context and stakeholder interests, rather than a homogeneous phenomenon.

Keywords Graduate work readiness, Stakeholder perspectives, Contextual meaning

Paper type Research paper

Employability and graduate work readiness

In 1997, the European Employment Strategy made individual employability central to combating youth and long-term unemployment (Winterton and Haworth, 2013). However, employability as a concept is both pervasive and contested. It is pervasive in that employers, policy makers and academics have adopted the term, particularly in discourse concerning the work readiness of graduates, but there is arguably no agreed definition. Following an extensive review of the literature, three definitions capture the current focus of employability, each focussing on the supply-side and individual characteristics. The Department for Education and Employment defined employability as “the capacity to move self-sufficiently within the labour market to realise potential through sustained employment” (Hillage and Pollard, 1998, p. 11). A report informing the committee of vice-chancellors and principals defined “employability skills” as comprising traditional intellectual skills like critical evaluation; key skills like communication and IT skills;
personal attributes including motivation; and knowledge about organisations (Coopers and Lybrand, 1998). The Confederation of British Industry described employability as “the possession by an individual of the qualities and competencies required to meet the changing needs of employers” (CBI, 1999, p. 1).

Adopting such a “hollowed out” supply-side concept of employability focussed on individual characteristics (McQuaid and Lindsay, 2002, p. 205), effectively shifts responsibility for unemployment to the unemployed (Serrano Pascual, 2009), blaming individuals and removing structural explanations (Moreau and Leatherwood, 2006). Neglecting the demand side ignores the essential “duality of employability” (Brown et al., 2003, p. 110), a duality that reflects the interaction of individual characteristics and labour market demand. This deficiency equally afflicts discussions of graduate employability, where graduates’ possession of “employability skills” is frequently conflated with their ability to secure employment (Holmes, 2013), promoting calls for a broader understanding of graduate employability than that used by policy makers (Tomlinson, 2012; Tomlinson and Holmes, 2017).

Concern over inadequate alignment of graduates’ skills and competencies with labour market needs as defined by employers, has been a recurrent theme for more than half a century in the UK (Dacre Pool and Sewell, 2007; Dearing, 1997; Robbins, 1963) and the USA (Freeman, 1976; Cappelli, 2015). This graduate employability discourse has dominated the higher education (HE) agenda in the UK for at least two decades with government and employers urging universities to ensure the work readiness of graduates and develop their capacity to take individual responsibility for their own learning and development. Since the late 1990s, a wider policy focus on employability accompanied by an emphasis on lifelong learning, involved the notion of Protean self-development (Baruch, 2014; Hall, 1996; Lifton, 1993) in the face of profound restructuring and job insecurity (Winterton and Forde, 2013). Boden and Nedeva (2010) attribute this discursive shift to the neo-liberalisation of HE in which graduate employability has become a performance indicator for universities.

More recently, a similar discourse has emerged in the Asia Pacific Region and particularly in ASEAN, following a similar pattern of employers complaining that graduates lack the competencies they are seeking and governments exhorting higher education institutions (HEIs) to better prepare graduates for the labour market (Prikshat et al., 2018). As in the West, universities are genuinely striving to address employers’ espoused needs, but in a highly competitive market where the HE offer exceeds the demand for places, universities are more likely to engage in “beauty contests” to demonstrate the employability of their graduates than to challenge the veracity of the discourse. With a few exceptions (Cameron et al., 2018; Dhakal et al., 2019) there has been little critique of employers’ claims concerning graduate work readiness (GWR) and little evidence-based analysis of the labour market realities of graduate employability.

By contrast, in the West, the employability imperative has been met with a degree of critical analysis from educational traditionalists like Michael Young (2008) defending the idea that universities should be about developing intelligent and ethical citizens rather than “oven-ready chickens” (Atkins, 1999) for the labour market. In the process of making graduate employability such a priority, Boden and Nedeva (2010) argue that such state interventions can adversely affect curricula and alter the balance of power in favour of employers, as well as exacerbating differences between two tiers of universities: the top institutions producing leaders and employers, whilst others develop “docile employees”. Moreau and Leatherwood (2006) make a similar point about the graduate employability discourse compounding problems of social reproduction. Notwithstanding the validity of these critiques, we explicitly acknowledge the dual role of education (including HE) in developing the whole person as well as facilitating access to employment. Our purpose in this paper, as in the Special Issue, is critically to evaluate the evidence and offer informed analysis, at the same time exploring the interactions between theory, policy and practice.
Given the volume of literature on graduate employability, a comprehensive systematic review would be impossible within the limitations of a single paper, but we have tried to capture temporal and spatial diversity in the evidence explored.

**Different perspectives within the Triple Helix**

Etzkowitz (2003) coined the phrase “Triple Helix” to describe a transformation in the relationships between university, industry and government whereby entrepreneurial activities to support innovation increasingly cause an intertwining and blurring of the respective roles of the three stakeholder groups. The new relationships promote capitalisation of knowledge and the creation of new forms of human, social and intellectual capital and in so doing form tri-lateral networks and hybrid organisations at the intersection of the three groups. In this context, different perspectives of the leaders of the three groups of institutions can limit the effectiveness of the “Triple Helix” and different interpretations of what makes a graduate ready for employment are no exception to this.

**Employers’ perspectives**

Employer dissatisfaction with the skills and competencies of graduates they engage is a global phenomenon and a remarkably similar discourse is common not only to Anglophone countries, which continue to dominate the literature, but in contexts as diverse as France, Malaysia and Turkey. Employers frequently criticise graduates’ “soft skills” such as team work and leadership, along with “meta-competencies” like learning to learn and coping with ambiguity (Suleman and Laranjeiro, 2018). Soft skills are often bundled together with motivation and commitment, which conflates competence with motivation, two distinct constructs according to the “AMO” approach to work performance (Boxall et al., 2019; Kellner et al., 2019). Much of the evidence is anecdotal and while there have been relatively few systematic studies the media often report employers’ views uncritically. In Canada, Finch et al. (2013) explored employers’ perceptions of factors defining graduate employability, also finding soft skills the most important and academic reputation the least. Chhinzer and Russo (2018) found employers assess graduate employability in relation to generic skills (such as time management and team working), general mental ability, subject specific knowledge and responsiveness to feedback, but also included “willingness to work, attitudes and behaviours”. Saunders and Zuzel (2015), similarly include “enthusiasm and dependability” among employability skills. Evidence from the UK suggests that graduate employers focus more on individual characteristics of students than academic discipline (McCracken et al., 2015) believing in the employability of graduates from institutions with which they have engaged and developed partnerships (Reeve and Gallagher, 2005).

Helyer (2011) examined higher-level skill gaps in the UK, noting that employers expect graduates to have employability as well as subject-based skills and particularly stress the importance of understanding how to learn and to increase the utility of learnt knowledge through making connections and solving problems. Jackling and Natoli (2015) reported that 40 per cent of internship providers for international accounting graduates in Australia thought interns were not “work ready”, while more than 30 per cent expressed reservations over the efficacy of the professional year programme for preparing Australian educated international graduates for the accounting profession. Tempone et al. (2012) explored employers’ views on desirable generic attributes for accounting graduates in Australia, highlighting communication skills, self-management and team working, but noted that the demands on universities to supply work-ready graduates are context-specific rather than homogeneous. In Portugal, Suleman and Laranjeiro (2019) explored employers’ perceptions of graduate skills and the strategies for skill formation to address apparent deficiencies, concluding that policy makers need to understand that employers have diverse needs. There is, therefore, an apparent contradiction in that employers
are increasingly emphasising generic skills, variously termed “employability skills” (Archer and Davison, 2008; Cai, 2013; Lowden et al., 2011), yet the particular skills identified as “transferable” vary according to role (Raybould and Sheedy, 2005).

**Governments and state agencies**
Governments have for the most part adopted employers’ perspectives concerning the employability of graduates and as a result encourage universities to ensure graduates meet employers’ expectations. A more cynical view of this approach would suggest that by doing so, state agencies draw attention away from economic explanations for graduate unemployment. In many countries, government agencies have created league tables for graduate employability and publish these as a way of driving this agenda (Christie, 2017), but these are invariably based on employment rates within a period after graduation, so tell little about whether graduates are working in graduate occupations or in jobs for which they are manifestly over-qualified.

Clarke (2018) notes that governments, notably in Australia and the UK, have facilitated the expansion of HE, paradoxically while reducing funding and in the process demanding that universities serve more directly employers’ interests by delivering work-ready graduates. She argues that governments have adopted a human capital perspective, assuming:

[…that the acquisition of certain skills and abilities will result in enhanced graduateness and ultimately graduate-level employment [which] […] dissociates the graduate skill development activities offered at a university level from the actual experience of finding a job. In fact, labour market outcomes indicate that possessing graduate skills does not in itself guarantee employment, nor does it ensure graduate-level employment (Clarke, 2018, p. 1927).

**Universities and educational institutions**
Universities and business schools have, for the most part, accepted employers’ concerns regarding graduate employability with many HEIs introducing a variety of initiatives to enhance graduate employability (Avramenko, 2012). It should be noted however that evidence on their effectiveness is rather scarce. In Australia and the UK, universities have adopted skill-based learning outcomes and introduced initiatives designed to improve graduate employability, such as internships and international study. Across the globe, universities have promoted various forms of work-based learning (WBL) to develop work readiness, and WBL through involvement in social entrepreneurship has been shown to enhance employability where employers are seeking graduates with entrepreneurial skills (Huq and Gilbert, 2013). Occupational areas such as social work usually include periods of professional practice but there is often a disjunction between academic and practice learning (Wilson and Kelly, 2010).

Universities have seen work-integrated learning (WIL) as a mechanism for improving work readiness and research with alumni in Vietnam who graduated from transnational education programmes clearly demonstrates the value of WIL and internships for graduate employability (Bilsland et al., 2019). Conversely, Jackson and Collings (2018) found WIL did not lead to an increase in employment rates, whereas paid work during study did. However, in that study WIL was associated with more appropriate employment but paid work as a student had little effect on underemployment as a graduate, reminding us that graduate employability should mean more than simply securing a job. Christie (2017) makes a similar point about universities echoing uncritical employability league tables and calls for a more nuanced narrative about GWR and career pathways.

Finding the key to graduate employability in professional competencies, especially competencies that are systemic in nature, rather than those related to graduate education, Teijeiro et al. (2013) recommended universities alter their focus to provide opportunities for
students to develop appropriate systemic competencies. There is obviously a contradiction in the notion of teaching “employability” (Bhaerman and Spill, 1988), and a study conducted for the UK HE Funding Council cast doubt over the assumption that the classroom is an appropriate place to develop employability skills. Cranmer (2006) concluded that it would make more sense to deploy resources on increasing employment-based training and grow university-industry linkages, each of which are associated with improving graduate labour market prospects (Ishengoma and Vaaland, 2016).

Students
Bridgstock (2009) has argued that graduates need to develop the capacity to pro-actively manage their careers. Finding appropriate career choices are a function of perceived employability and career management competencies (Jackson and Wilton, 2017b), with universities seen as an important conduit in this process, actively engaged in developing strategies to encourage students in career self-management (Jackson and Wilton, 2017a). Students can therefore be considered a potential “fourth” stakeholder to the Triple Helix, despite lacking labour experience, their active engagement in career ownership (Donald et al., 2017) are essential for GWR to be successful. Despite this, student perspectives on employability are rarely studied (Tymon, 2013). Gedye and Beaumont (2018) found students initially equated employability with “ability to get a job” but that this developed into a more nuanced appreciation of the interaction between extrinsic employer wants and intrinsic student competencies as a result of enterprise and employability activities embedded into their programme of study.

Jackson (2012) explored the self-rated competencies of business undergraduates compared against a set of employability skills derived from the literature, later (Jackson, 2016) arguing for the need to reconceptualise employability more broadly than in terms of skills by considering “pre-professional identity”, a concept akin to Beruf in the German vocational training system (Winterton, 2017). Students’ perceptions of the labour market and understanding of career progression appear to influence their capacity to manage their employability (Tomlinson, 2007). Where students understand occupations, careers and labour markets, they probably have the foundations for building GWR and it should be easier to develop such understanding where courses have a specific professional identity. To the extent that work experience enhances that understanding, students who have undertaken work placements or internships, as well as graduates six months into their first job, should have perspectives more grounded in labour market reality. A study of students’ perceptions of IT supported this hypothesis, finding a decline in perceived ability in employment despite increasing skills, because of their increased awareness of skills needed in the workplace (Kaminski et al., 2009). Reddy and Shaw (2019) in a rare qualitative longitudinal study, found integrated work experience helped psychology students to develop professionalism.

Comparing perspectives
It is important to assess the alignment of different stakeholder perspectives since part of the difficulty in achieving work readiness stems from differences in perception between the worlds of education and work. Employers and educationalists often have different conceptual understanding of the competencies graduates ought to possess when they enter employment and common vocabularies may mask fundamental differences in underpinning concepts. These conceptual misunderstandings between employers and educationalists are shared across the globe, in Lithuania, for example, educationalists and employers use different terms to describe “competence”: kompetencija and kompetetingumas, respectively. The former refers to the innate capacity an individual has for developing competence, while the latter refers to the demonstration of that competence in the performance of work.
In addition to the usual “employability skills” associated with graduates, employers frequently mention characteristics that are essential personality factors such as “trustworthiness and reliability”, or attitudinal and motivational issues (McMurray et al., 2016).

In Sri Lanka, Wickramasinghe and Perera (2010) compared what employers, university lecturers and graduates in computer science regarded as the most important skills to support employability and found significant differences in the priorities of each group, as well as differences in the priorities of male and female graduates. Similarly, in Papua New Guinea, Bhanugopan and Fish (2009) found final-year business undergraduates and employers to have significantly different perceptions of the relative importance of different employability support fields. Tymon (2013) also found limited alignment between the perspectives of undergraduates and other stakeholders in the UK.

By contrast, Saunders and Zuzel (2015) reported a strong correlation between UK sandwich students in molecular science and employers, in terms of the relative priorities of “employability skills”, although employers tended to rate recent graduate employees lower than they rated themselves on those skills. Moreover, students and employers in this study emphasised “enthusiasm and dependability” as key skills for employability, suggesting a shared lack of understanding as to what constitutes skill. In Botswana, Pheko and Molefe (2017) found students broadly agreed with employers, ranking personal qualities above subject-specific skills, while in Malaysia, Cheong et al. (2018) found students’ understanding of employability was broadly in line with that of employers, although in such high power-distance contexts, students are likely to repeat what employers say. In Australia, Kavanagh and Drennan (2008) found employers and students agreed on the skills needed for employment, although the ranking differed; they also agreed that university accounting programmes were not adequately developing these essential non-technical attributes.

If there is mixed evidence of agreement in the perspectives of students and employers concerning skills for employability, most research has revealed a mismatch between employers and education providers. Williams et al. (2019) used repertory grid techniques and a personal construct approach to compare views of employers and educators in the UK, finding areas of consensus but also substantial divergence, concluding that graduate employability is a “continually re-constructed concept”. The prevailing view, certainly among employers and policy makers, is that employers’ perspectives should be used as a benchmark and that educators need to listen, but there is equally evidence that such assumptions should be questioned.

Do employers need the skills they want?
The title of this section is borrowed from a seminal piece of work by Stasz (2006), who challenged prevailing views in the USA during the 1990s that there was an employability gap of those entering the labour force (Winterton, 2018). Summarising five of the most influential studies at that time, O’Neil et al. (1997, p. 13) identified four categories of “job-readiness skills”: basic skills; higher-order thinking skills; interpersonal and team-working skills; and personal characteristics and attitudes. Stasz (2006) found that generic skills identified by employers were essentially the same “work readiness” or “employability skills” like problem solving, teamwork and communications. However, whilst these were what they said they wanted, employers did little to help develop them through training or working with schools (Stasz, 1995).

Ellis (2003) argued that employers and educational institutions need help to identify future skills needs and described a system established in London to provide such support. Employers have rarely established systematic mechanisms for forecasting jobs and skills, although in France the practice of Gestion Préalable des Emplois et des Compétences...
(GPEC) is well established (Winterton, 2017). The GPEC method was a way of aligning human capital planning with organisational strategy so that enterprises would be able to prepare recruitment or training in anticipation of changing skill requirements associated with new technologies and processes.

The UK raises interesting questions in relation to preparing the workforce to meet employers’ skills needs. Traditionally characterised as having a “low skills equilibrium” (Finegold and Soskice, 1988; Heyes and Stuart, 1994), the UK regularly manifests chronic skills gaps and shortages in part because of employers’ reluctance to invest in training. More than a half century ago, it was a Conservative Government that concluded skill shortages were the result of “leaving training to the discretion of individual employers” (Winterton and Winterton, 1994, p. 3), and as a result introduced the Industrial Training Act 1964 to increase the supply of skilled workers. However, in the 1980s when a subsequent Conservative Government under Margaret Thatcher abolished most of the tripartite sector bodies created to manage training, it was with the intention of “giving training back to employers”, a mantra often repeated by governments of various complexions up to the present. From the 1990s, HE in the UK expanded from elite to mass provision, ostensibly to supply highly skilled labour to meet the needs of knowledge-based industries (KBIs), while employers continued to report skills shortages and suggest graduates were ill prepared for the world of work.

The provenance of the notion of worldwide shortages of labour, especially skilled and professional labour, was a widely publicised report from McKinsey Consulting (Chambers et al., 1998) predicting a “war for talent”, which was later reinforced by the publication of a book with that title by Harvard Business School Press (Michaels et al., 2001). A later Harvard publication (Dychtwald et al., 2006) extrapolated this to a general shortage of labour, proposing remedies for companies to deal with the imminent “workforce crisis”.

These influential publications prompted a spate of publications on skills shortages and “talent management”. Employers on both sides of the Atlantic continued to report shortages of workers with high-level skills, yet there was none of the usual labour market evidence: increases in wages and salaries were modest and unemployment obstinately refused to wither (Capelli, 2015).

In the UK, Green and Ashton (1992, p. 298) argued that emphasis on employer-defined skills shortages fundamentally misconstrued the more complex problem of deficiencies in the country’s skill base, calling for a new research agenda to “define and monitor much more accurately the skills actually used in workplaces”. Glynn and Gospel (1993, p. 116) connected product-market strategies to labour-market behaviour and labour processes, arguing that British employers had historically failed to “perceive the long-run production possibilities of new technologies and more human-capital-intensive production”. Increasing evidence of a substantial demand deficit for high skilled jobs, prompted criticism of the policy focus on supply-side measures (Mayhew and Keep, 1999), graduate supply clearly exceeded labour market demand (Keep and Mayhew, 2004). The UK anomaly of a persistent low-skills equilibrium accompanied by a policy focus on a high-skills strategy has not been lost on academic commentators (Lloyd and Payne, 2002, 2005; Keep et al., 2006).

In many countries, the expansion of HE in recent decades brought increasing numbers of graduates into the labour market and led to higher levels of graduate unemployment: “young people find prolonged education increasingly unsatisfactory but increasingly demand it” (Crouch et al., 1999 p. 6). Debates about which skills protect graduates from a slack labour market (Humburg et al., 2017) are relevant for individuals but do not address structural problems of over-supply or demand deficiency and risk becoming another mechanism for blaming the victims. Graduate unemployment is causing concern in Saudi Arabia (Al-Dosary et al., 2006), Nigeria (Pitan, 2016) and South Africa, where there is also an
apparent skills shortage (Pauw et al., 2008). The “massification” of HE in China has not increased occupational opportunities or social mobility but has led to “positional competition” among graduates, reflecting growing social inequalities (Mok, 2016). The massive expansion of HE in Portugal between 2000 and 2010 has been associated with over-education, over-skilling and education-job mismatches (Figueiredo et al., 2017).

Some observers may regard the problem as over-education (Brynin, 2002), highlighted by Freeman (1976) more than 40 years ago, but skills mismatch (Sutherland, 2012) is a more accurate term. In a context where KBIs require a highly educated workforce, the more alarming problems are demand deficiency for high skills and under-utilisation of skills of the existing workforce (Buchanan et al., 2010). Survey evidence suggests that in the UK more than one third of workers use only a proportion of their skills (Green and McIntosh, 2007; Mavromaras et al., 2010; Sutherland, 2013). Whilst the skills debate in the UK has moved more towards questions of skill utilisation and mismatch, this has yet to occur in ASEAN, where the policy focus remains one of increasing supply of highly skilled workers and ensuring graduates are “future proofed” for the labour market (Cameron et al., 2018; Dhakal et al., 2019).

We are also mindful that where employers are using a university degree as a sorting device for recruitment, they are probably not deploying and managing graduate talent effectively (Brown and Hesketh, 2004). Employers also have clear preferences for specific universities, and as HE becomes increasingly layered in many countries, this could simply be a way of getting access to individuals with high social capital, reminding us that education plays a major role in replicating and reproducing socio-economic inequalities (Bowles and Gintis, 1976).

**Disruptive changes with Industry 4.0 and an agenda for future research**

The difficulties described above in identifying what skills the labour market expects graduates to have and of predicting future skills needs inevitably become even more challenging in a context of rapid and profound technological change. Hwang (2003) demonstrated that with the diffusion of information and communication technologies, skill requirements inevitably shifted from motor skills to cognitive skills but warned that technological changes are so complex in nature that skill changes are multi-faceted. We can expect the challenges posed by Industry 4.0 to be far greater because of the pervasive nature of this latest wave of technologies and the speed of their development. From what we know about the effect on skill requirements of recent technological changes (Autor et al., 2003), it is anticipated that developments in artificial intelligence will have a profound effect on knowledge-intensive work.

Almost contiguous with dire warnings of labour shortages have been a series of even more dramatic predictions of job losses associated with Industry 4.0. The global financial crisis (GFC) prompted an intensified application of new technologies to seek further efficiencies, which had the effect of removing a high proportion of middle level jobs leading to a polarisation of labour markets in the UK (Goos and Manning, 2007), the EU (Goos et al., 2009) and the USA (Autor and Dorn, 2013), and raising the spectre of “jobless growth”. However, it was soon apparent that automation no longer only affected routine manufacturing tasks because developments in artificial intelligence allow increasingly complex cognitive tasks to be computerised (Brynjolfsson and McAfee, 2015). Frey and Osborne (2013, p. 1) predicted that 47 per cent of US jobs are at risk of computerisation, while a recent report from the WEF (2016, p. 13) similarly concluded that between 2015 and 2020 disruptive labour market changes would cause a net loss of 5.1m jobs. The WEF study suggests that new technologies will eliminate 7.1m jobs, two thirds of these in office and administrative work, whilst simultaneously creating 2m jobs; these are “disproportionately from smaller, generally high-skilled job families that
will be unable to absorb job losses coming from other parts of the labour market” (WEF, 2016, p. 14). To this should be added the effect of labour force growth outstripping job creation, which according to ILO (2017) estimates will add another 3.4m to global unemployment in 2017. That population growth is mostly concentrated in the least developed and developing countries in Africa, the Middle East and Asia, where the proportion of young people is also much higher than in Western industrialised nations. The challenges will therefore be especially serious in regions like ASEAN. The recent WEF (2016, p. 10) study noted:

Recent discussions about the employment impact of disruptive change have often been polarised between those who foresee limitless opportunities in newly emerging job categories and prospects that improve workers’ productivity and liberate them from routine work, and those that foresee massive labour substitution and displacement of jobs.

These apparent contradictions are unsurprising given that workers with “higher” skills will be in demand to develop, install and maintain those new technologies that will displace other workers whose skills become obsolete. Such scenarios are characteristic of rapid technological change, as are the skills mismatches that accompany them. What is unusual, however, is that despite all the policy rhetoric of the high skills future, substantial proportions of those in employment report that their skills are under-utilised or that they are “over-qualified” for their current job. Employers, meanwhile, continue to report difficulties in recruiting at all levels, claiming labour or skills shortages even after the GFC, when 5.7m jobs were lost from US manufacturing (Atkinson et al., 2012). Cappelli (2012) explained the apparent paradox by employers’ rising expectations and failure to invest in developing employees. Employers attribute their problems to deficiencies in the candidates, increasingly expecting “plug and play” employees who are immediately able to perform in a given role. Frequently employers reject candidates because they lack experience in a similar job or because their salary expectations are “unrealistic”.

Many studies of GWR have acknowledged the increasing importance attached to generic soft skills, typically attributing graduates’ shortcomings to the inability of HEIs adequately to prepare students for entry to the labour market. Andreas (2018) argues that deficits in soft skills are associated with a decline in social capital, which is making it difficult for students to acquire these skills because preoccupation with social media is reducing their face-to-face contact. Herein lies another conundrum for universities seeking to harness digital platforms for educational purposes since such strategies are perhaps unwittingly exacerbating the problem.

An agenda for future research
It may be axiomatic that industry matters in these conversations but reports of employer concerns with GWR often appear to assume these are generic deficiencies relating to all sectors and occupations. More nuanced analyses that drill down into different disciplines and types of graduate employment are clearly more useful: recent examples include studies focussed on creative industries (Bridgstock, 2011); on the “innovation and commercialisation industry” (Collet et al., 2015); and in hospitality and tourism (Adeyinka-Ojo, 2018).

The discussion above has highlighted similarities as well as differences in the views of government, educational institutions, employers and students, but there is little systematic analysis of the different findings of various studies. There is, therefore, also a need to research stakeholders’ perspectives in more detail through discourse-based interviews, as Moore and Morton (2017) recently did to explore employers’ attitudes to professional writing skills.
Country context clearly matters too, not simply because of differences in economies and industrial structure that will evidently affect the number and type of graduates will be in demand. Country context is also important because of historical and cultural differences in educational systems that will influence the manner and extent to which universities engage with employers. Such issues are particularly relevant in Asian contexts, where one should never assume initiatives that work in Europe or North America will be equally appropriate.

In setting an agenda for future research into GWR, we would therefore insist on three principles:

(1) examine specific occupations and sectors rather than treating GWR as a homogeneous phenomenon;
(2) explore and explain similarities and differences in stakeholder perspectives to promote common understanding; and
(3) explicitly address the specificities of the country context to ensure recommendations are fit for purpose.

In addition to these principles, there will be a need for more detailed research and analysis of how the emerging new technologies are affecting skills needs of graduates and the entire workforce. The rapid and profound nature of technological disruptions already taking place and those that will follow will not only affect new entrants to the labour market but those who are already employed and at any time represent the overwhelming majority. Logically, therefore, perhaps we should be less concerned with graduate employability and the preparation of new entrants and pay more attention to the existing workforce and how they can be better prepared for assuring their continued employability.

References


Preparing graduates for work readiness


Preparing graduates for work readiness


Corresponding author
Jason J. Turner can be contacted at: JasonJamesTurnerMalaysia@gmail.com

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The effectiveness of problem-based learning in technical and vocational education in Malaysia

Noor H. Jabarullah
Malaysian Institute of Aviation Technology, Universiti of Kuala Lumpur, Selangor, Malaysia, and
Hafezali Iqbal Hussain
Taylor’s Business School, Taylor’s University, Subang Jaya, Malaysia

Abstract

Purpose – The purpose of this paper is to examine the impact of the use of problem-based learning (PBL) with engineering students at a technical university in Malaysia.

Design/methodology/approach – The setting provided a unique opportunity to evaluate the impact of PBL, since Universiti Kuala Lumpur offers both the traditional, predominantly classroom-focused approach to engineering and the more hands-on approach referred to as Higher Technical and Vocational Education and Training (HTVET). The study sample consisted of 433 third-year students enrolled in both programmes at Universiti Kuala Lumpur.

Findings – Students in the HTVET programme responded better to PBL teaching methods, as evidenced by improved performance on written as well as lab-based assessments. This result indicates that students using the hands-on approach advocated by HTVET tend to obtain the greatest benefit from experiential, student-centred learning approaches. The analysis suggests the possibility that the PBL approach is a moderator of student performance in HTVET programmes. This possibility merits further investigation.

Research limitations/implications – The sample included students from only one institution of higher learning, which was chosen because both types of programmes are offered there. In addition, the current study does not consider potential mediating or moderating variables.

Originality/value – The findings provide an empirical basis for implementing PBL as a form of experiential learning at higher education institutions, especially those using the HTVET model. Furthermore, they provide a justification for designing curriculum structures and student learning time with an emphasis on active and experiential learning, thereby maximising the effectiveness of a hands-on approach, rather than the “minds-on” theoretical approach advocated by traditional engineering programmes in enhancing the teaching and learning experience.

Keywords Learning methods, Learning styles, Problem-based learning

Introduction

Various studies have suggested that engineering graduates need to acquire and demonstrate a set of generic or “soft” skills such as communication, problem solving and interpersonal relationships to be prepared for future employment. All these attributes can be fostered through application of a problem-based learning (PBL) approach (de Villiers Scheepers et al., 2018).

In PBL-based instruction, students engage in real-life problem solving through facilitated sessions. PBL has been successfully implemented in numerous disciplines for more than 30 years. Its student-centred approach engages participants in complex problems with open-ended answers (Chang et al., 2018). In addition, PBL provides a basis for developing work-related skills because students typically work together in groups, conduct research and integrate theory and practice (Sada et al., 2015; Ungaretti et al., 2015).

To ensure the employability of engineering graduates, it is important for training programmes to be well aligned with the dynamic expectations of today’s job market (Sterling, 2008). It is imperative to equip graduates not just with the requisite skills, but also with the ability to take responsibility for their own actions (Godemann et al., 2011;
De Haan, 2006) and to make effective decisions that will shape their own future (Burmeister et al., 2012). Research evidence indicates that experiential learning approaches such as PBL have been successful in imparting skills that enhance students’ employability (Wilson, 2012; Smith et al., 2013). Although many engineering jobs require only a bachelor’s degree as an academic qualification, just having a degree does not guarantee graduates a position in the Malaysian job market (Saad et al., 2013; Venkatraman et al., 2018). Thus, to enhance graduates’ employability, it is crucial for institutions of higher learning, especially degree programmes in technical fields, to nurture their students’ ability to think creatively, adapt to different working environments (Gartland and Smith, 2018), and be self-reliant and resilient in acquiring knowledge (Shriberg, 2002; Idrus et al., 2013).

The main rationale underlying Technical and Vocational Education and Training (TVET) is to produce graduates who are work ready by developing relevant knowledge and skills. TVET also encourages training in essential real-world skill sets such as critical thinking, problem solving, communication and lifelong learning. Consistent with these imperatives, the recently launched national education blueprint of the Ministry of Higher Education in Malaysia highlights the need to produce graduates who are holistic, balanced, global, entrepreneurial and lifelong learners (Hasim et al., 2016). In addition, the blueprint further elevates the status of TVET courses at engineering schools in Malaysian technical universities, placing them on a par with traditional engineering programmes via the introduction of the “higher TVET” (HTVET) track (Hussain et al., 2015).

Students following different tracks are likely to have differing motivations for and approaches to learning (Cassidy, 2006; Arquero et al., 2015). The present study seeks to examine differences in academic achievement between students in HTVET programmes and those in traditional engineering programmes. The main motivation for conducting this study is the difference between the two tracks’ approaches, whereas traditional engineering programmes are based largely on a “minds-on” approach, the HTVET track applies a hands-on approach.

In line with the expectations derived from the literature, the results indicate that students on the HTVET track were more responsive to the PBL method than their peers on the traditional track. In addition, students exposed to PBL showed a greater inclination towards deep and strategic learning rather than surface learning. The findings show that the implementation of PBL in curriculum structures that emphasise a hands-on approach tends to enhance student academic achievement as well as learning attitudes. The results provide a basis for restructuring learning time for students on the vocational track with a greater incorporation of student-centred experiential and active learning rather than lecturer-centred passive learning.

Literature review

TVET vs traditional engineering

TVET encompasses formal and informal learning that prepares students with the knowledge and skills required for the world of work. According to the United Nations Educational, Scientific and Cultural Organization, TVET has been referred to by many names over the years: apprenticeship training, vocational education, technical education, technical-vocational education, occupational education, vocational education and training, professional and vocational education, career and technical education, workforce education, and workplace education, among others. Despite these many names, TVET has a common identity that involves the study of technology and related sciences in conjunction with developing practical skills, attitudes, understanding and knowledge related to one’s chosen profession, as well as general education. Students have the opportunity to learn at basic to advanced levels across a variety of institutional and work settings through
TVET education systems. In the USA, TVET is generally known as career and technical education, and a plethora of modern and rigorous programmes of this type prepare students for a wide range of high-skill, high-demand careers.

TVET is also important to the ASEAN nations, whose economies have experienced strong economic growth and social development. With an emphasis on the importance of knowledge and the need for a skilled workforce, ASEAN countries have viewed vocational education as an important priority in ensuring continued economic and social development (Reeve, 2016). However, there are still challenges to overcome, including the lack of skilled labour, limited practical vocational training in secondary and higher education and restrictive labour market regulations (Lynch, 2000).

In the Malaysian context, developing a skilled local workforce was identified as one of the six key strategic thrusts in the 11th Malaysia Plan (2016–2020). This goal is considered important in helping the country to achieve a successful economic transformation from a middle-income to a high-income country (Economic Planning Unit, 2016). TVET is considered a key tool in training highly skilled human resources and thereby helping Malaysia to become a higher-income society. TVET is expected to enhance Malaysia’s national productivity and competitiveness, especially since the country’s workforce is seen as somewhat lacking in vocational and technical skills (Lee, 2017).

TVET can be contrasted with more conventional or traditional education approaches, which are generally highly academic and lecturer-focussed. In traditional education, students’ exposure to current industry expectations, practices and norms with regard to knowledge, skills, abilities and personality traits is more limited. The focus is more heavily on theory and on passing content-based examinations, whereas TVET is more hands-on and practical, with a greater emphasis on applied knowledge of underlying theory to specific subjects.

**Higher TVET**

HTVET is the culmination of TVET programmes. Its tertiary education instruction is comparable to that of traditional engineering programmes in terms of academic expectations. The main difference is that in HTVET, the teaching approach is primarily hands-on rather than minds-on (Jabarullah and Hussain, 2018). In addition, the HTVET model emphasises active, experiential learning rather than passive learning. Traditional engineering courses tend to be lecturer centric, whereas the HTVET model is student-centric. The HTVET model thus aims to produce graduates who are fully work ready.

In accordance with this difference in models, HTVET also takes a different approach to student assessment. Traditional engineering education programmes usually place greater emphasis on the final examination, which must represent at least 60 per cent of the total grade as stipulated by the Engineering Accreditation Council (EAC, 2017) of Malaysia. In the HTVET model, according to the Malaysian Ministry of Education and Malaysian Qualifications Agency framework, the final examination must be worth 40 per cent of the grade, and the remainder is based on practical work and assessments.

Furthermore, HTVET provides a greater first-hand exposure to industry than the traditional engineering model does, beginning with a two-week industry experience in the first year of study. In the second year, students spend another four weeks at an industry setting, and in their final year they complete a full-fledged internship. In Malaysia, as stipulated by the EAC manual, the traditional model requires students to obtain at least eight weeks of industrial training or practical work experience before graduation; in TVET degree programmes, at least three months of industry-based training are required in the final year alone. Both education models require the training to be adequately structured, supervised and recorded in log books or reports. The qualification levels and other parts of the programme structure are similar in both TVET and the traditional academic model, as depicted in Figure 1.
Problem-based learning

In PBL, a common form of experiential learning, students are presented with a problem scenario. In the course of addressing the problem, they experience the learning steps shown in Figure 2. The course instructor typically plays a facilitator role in PBL. Students analyse and formulate the problem by identifying the important facts and trigger words contained in the problem.

At the “identify facts” stage, students come to understand the problem by generating hypotheses about potential outcomes. Upon completing each problem, students reflect on the breadth and depth of the knowledge they have gained. The facilitator helps students to develop the cognitive skills required to solve complex problems and to engage in effective collaboration. Along the way, students acquire skills needed for lifelong learning by managing their learning goals and strategies to solve the problems assigned to them, which are structured but open-ended (i.e. without a single correct solution).

This process indirectly identifies knowledge deficiencies related to the problem and provides insights regarding areas for improvement, thereby motivating diligent self-improvement.

In this paper, the effectiveness of PBL implementation in HTVET as compared to the traditional education model is considered.

Higher education institutions can use industry partnerships to help them create employable graduates of technical programmes. Such learning processes require “learning by doing” that engages the students with the subject, work assignment or service involved. According to Katula and Threnhauser (1999), PBL and other forms of experiential learning help students to think creatively, solve problems, make decisions and develop communication skills. Experiential learning contributes to student engagement because much of the technical knowledge required in engineering degree programmes is text-based. In the traditional model, students have limited engagement with industry until their final internship (Austin and Rust, 2015). Until that point, they have little or no ability to gain practical industry experience. In contrast, actual industry experience in the early years of study, accompanied by information on what employers expect of graduates, enables students to have more rewarding, practical hands-on experiences and to be more conversant with current industry practices when preparing and submitting assignments and completing coursework.
Students can compare their submissions to industry thinking and expectations. They are prompted to study the latest solutions of technical challenges in the market and to experience how industry players think and act (Rosier et al., 2016). Moreover, reflection is stimulated when students who have had real-life industry experience have their submissions assessed by academics. The feedback received from PBL activities helps students to consider whether the ways in which they think and do things are consistent with industry expectations and procedures.

Graduate employability: the case of the HTVET model
Increasing graduates’ employability has become a primary focus at many universities worldwide (Markes, 2006). Engineering graduates’ personal attributes and soft skills are increasingly important evaluation criteria for employers (Mishar, 2016; Zaharim et al., 2009). Graduates’ employability depends on their knowledge, skills and attitudes (Hillage and Pollard, 1998). Other research has found that employers apply four criteria when hiring new staff: knowledge, skills, abilities and “other” or KSAO (Noe et al., 2007). In the “other” category, graduates need to demonstrate self-confidence, self-management skills, information technology skills, communication skills, teamwork and the ability to work under pressure and in uncertain situations (Raybould and Sheedy, 2005). In the Malaysian context, this set of criteria has also been referred to as KSAP, with the P standing for personality traits (Schmidt et al., 2011).

Knowledge comprises facts, information and skills with regard to the theoretical or practical understanding of a subject, gained through experience or education. Knowledge can be gained during PBL activities from the self-directed learning process (Shuman et al., 2002). Students are required to access, study and integrate information from all disciplines that
might relate to understanding and resolving a particular problem, just as they must do in the real world, and apply the information gathered from diverse sources to their work. Knowledge can be tacit or explicit. According to Polanyi (2009), tacit knowledge is not readily obvious and can be obtained only through practical demonstration rather than verbal or written description; on the other hand, explicit knowledge can be easily formulated and passed on between individuals. PBL enables students to experience situations where they are aware of something they do not understand, which in turn alerts them to the gap between what they know and what they need to know. This experience of knowledge deprivation motivates an information-seeking process to gain more knowledge and close the identified gap.

Skills refer to an individual’s level of proficiency in performing a particular task or the capacity to perform a job effectively, they can be either behavioural or technical (Shuman et al., 2002). Technical skills are usually known as hard skills, whereas behavioural or soft skills include communication, one’s attitude towards completing a task, and one’s ability to function as a team member. Almost invariably, in today’s workplace, employees must share information and work productively with others, PBL provides a setting for the development of these essential skills. Self-directed research trains students to collect information that will inform group decisions and to share it effectively with other group members.

Ability denotes the power to perform an observable activity. Abilities are related to activities or behaviours required on the job, such as the ability to plan and organise work. Abilities can be physical or intellectual in nature. Abilities are relatively permanent capacities that distinguish one person from another.

Finally, the category of personality covers the relationship between personality features (frequently identified as the Big Five personality traits) and work characteristics (Kreitner and Kinicki, 1998; Özbağ, 2016; Raybould and Sheedy, 2005; Robbins and Coulter, 2012; Tett et al., 1991). These personality traits include openness to experience, conscientiousness, extraversion, agreeableness and neuroticism (emotional stability). Personality traits can be developed through PBL practices as students solve complex problems, share the information gained and discuss the solutions. Students also need to pursue agreement or consensus with each other and the facilitator. Openness can take the form of appreciation of art, emotion, adventure or curiosity (Gibson et al., 1991). Conscientiousness is a tendency to show self-discipline, be loyal and strive for a goal (Robbins and Coulter, 2012). These actions are deliberate rather than spontaneous behaviour. PBL activities train students to set their learning goals by identifying what more they need to learn to complete the task they are engaged in (Prince and Felder, 2006). PBL encourages students to plan their learning properly and select appropriate learning techniques and actions to reach their goals.

Extraversion is described by researchers as energy, positive emotion and a desire to seek stimulation in the presence of others. In PBL settings, students were able to stimulate interest of others to work in a team and triggered group discussions (Hmelo-Silver, 2004).

Agreeableness is the ability to be cooperative and caring towards others. PBL activities require solving problems in small groups, which promotes collaborative experience and will enable closer and more caring contact between students and lecturers.

Finally, emotional stability is characterised by calm, focussed behaviour and a self-confident approach to handling stress. The PBL environment generates peer pressure that can motivate students to be diligent in their self-study and also to meet agreed-upon deadlines. These two non-cognitive side effects can help students become better adjusted and more effective in their subsequent work settings (Mason et al., 2013).

Studies have also documented the gap between the skills that industry expects and those possessed by graduates of local universities; this gap primarily involves soft skills, not hard skills (Cheong et al., 2016). Therefore, Malaysia continues to face the challenge of attracting high-value and quality investments that lead to the creation of high-skill jobs in the labour market, which in turn yield higher income levels.
To produce high-quality graduates that Malaysia needs in order to become a fully developed nation by the year 2020, higher education institutions can draw on industry feedback and the experiences of newly employed graduates to transform their delivery of technical programmes in accordance with current industry expectations. In addition, the enhancement of HTVET programmes is expected to further increase graduates’ employability as well as providing persistent wage effects (Lee and Cho, 2017). Furthermore, successful implementation of the HTVET model can enhance entrepreneurial intentions amongst graduates (Parry and Hayden, 2015; Cheong and Lee, 2016).

**PBL and learning styles: HTVET vs traditional engineering**

The impact of PBL on student performance can be attributed to its effect on students’ learning styles. Asikainen and Gijbels (2017) described three main categories of learning styles. Some students learn largely by rote, simply memorising and then reproducing the material, this style is called surface learning. In a surface learning approach, students may memorise selectively based on motives or intentions that are extrinsic to the real purpose of the task, such as a fear of failure or staying out of trouble (Vanthournout et al., 2013).

In contrast, students using a deep learning approach understand the meaning of the material being studied and relate it to their previous knowledge and personal experience. This style is associated with students’ intentions to understand and to engage appropriately in meaningful learning, focusing on the main themes and principles and using strategies that are appropriate to create such meaning. A third learning style, referred to as strategic learning, tends to choose either the surface or deep learning approach depending on which method students believe will produce the best outcome (e.g. the highest grade) in each circumstance. Students in this category may organise their study plans in response to how course assessment will take place. Theoretically, this strategic approach diverges from both the deep and surface approaches in the sense that the other two styles describe ways of engaging in learning, whereas the strategic approach describes a conscious concern for adopting a learning style to achieve a particular outcome.

Students taught by PBL methods are expected to exhibit less surface learning, more deep learning and greater versatility in learning styles than those taught by traditional didactic methods (Yeo, 2005). Self-directed and student-centred learning can be enhanced through PBL. Essays, presentations, practical laboratory work and oral or hands-on assessment methods foster understanding of underlying basic principles and are thus viewed as promoting deep learning, whereas multiple-choice examinations, which rely primarily on recall and recognition (Gijbels et al., 2005), may promote surface learning. PBL may also enhance self-directed learning.

**Methodology**

Several universities in the Malaysian Technical University Network offer HTVET-based engineering programmes. The student sample for this study was taken from Universiti Kuala Lumpur, because this school offers both engineering instruction using both the HTVET (Bachelor of Engineering Technology) and traditional models (Bachelor of Engineering) (Cheong et al., 2013), thereby facilitating the study objective of comparing the impact of performance and learning styles in response to the PBL method for the different tracks. The undergraduate engineering syllabus for the electrical engineering course (which occurs in the third year of a four-year curriculum) was revised to replace traditional didactic methods and include the implementation of PBL. This was one of the first PBL experiences these students encountered. The impact of PBL implementation on students’ performance was compared between these two programmes.
All the third year electrical engineering students from both cohorts were invited to participate in the study during the January 2016 semester. Both cohorts received the same curriculum, taught by PBL methods. The course contained 14 weeks of PBL activities.

The sample consisted of 453 students: 215 on the traditional engineering track and 238 on the HTVET track. Of these, 285 (63 per cent) were male and the average age was 21 with a standard deviation of 1.5 years and a range from 19 to 23. No significant differences in age or gender between the two tracks were observed.

Prior to the start of teaching on the first day of the PBL sessions, students were invited to take part in the study by a lecturer who was not involved in the assessments of the students. After an explanation of the nature of the evaluation and the change to a PBL-based approach, participants were asked to complete a baseline questionnaire which included an informed consent form. They then completed a second questionnaire after taking the final course examination. Confidentiality was maintained by using students’ registration number on the questionnaires in place of their names. Students’ scores on the final examination were entered into an anonymised data file.

Variables measured
Baseline measures. Baseline measure 1 recorded each student’s gender and age.
Baseline measure 2 concerned students’ attitudes towards engineering, measured using a 43-item Engineering/Technology Attitudes scale (Unfried et al., 2015). This instrument includes science, math, engineering/technology and the twenty-first century skills subscales. The attitudes measurement has been tested internationally in many studies and has demonstrated validity and reliability.
Baseline measure 3 concerned student learning styles, measured using the 28-item version of the Study Process Questionnaire (SPQ) (Fox et al., 2001). The SPQ has three subscales, which indicate the extent to which students use surface, deep or strategic learning styles. The SPQ has been shown to be reliable and acceptable when used with engineering students.

Outcomes. Outcome measure 1 concerned academic performance, measured by students’ percentage score on the formative assessments conducted on the last course week. The assessment components were a 30-item multiple-choice examination (Assessment 1), an essay-based examination (Assessment 2) and an oral test (Assessment 3). The overall score required to pass was 40 per cent. The maximum time allowed was 60 min for Assessment 1 and 120 min for Assessment 2. On Assessment 1, each correct answer was worth 1 point but 1 point was deducted for each wrong answer, thus making it more difficult to reach 40 per cent standard (in effect, if one answered all 30 questions, one had to get 70 per cent of the answers correct to achieve a grade of 40 per cent).

The oral test, Assessment 3, consisted of a 20-min presentation regarding the student’s solution of a PBL task. Two academic examiners conducted the assessment. Each student presented the problem and his or her solution and then responded to questions about any aspect of the PBL task. The examiners took notes during the presentation and indicated their grade immediately afterwards, before moving on to the next candidate. Examiners received a rubric to guide their grading on a scale from 0 to 20, which was then converted to a percentage score. Each examiner graded the student separately, and any differences were then moderated by discussion at the departmental level, any discrepancies greater than 5 per cent were brought before a quality committee. Pairs of examiners were changed at each presentation session. Students were not assigned to examiners who had taught them during their PBL sessions.
Outcome measure 2 concerned attitudes towards engineering, again measured using the 43-item Engineering/Technology Attitudes scale. Outcome measure 3 concerned learning styles, again measured using the 28-item SPQ.
Development of hypotheses. The hypotheses were based on the expected outcomes of the study as discussed in the literature review. It was expected that the incorporation of PBL would increase the overall effectiveness of teaching in all settings. However, since HTVET education is characterised by hands-on and experiential learning, PBL was expected to produce a larger improvement under the HTVET model. The hypotheses were as follows:

H1a. There will be no difference in performance between cohorts in their performance of Assessment 1.

H1b. HTVET students will perform better than traditional engineering students on Assessments 2 and 3.

H2. HTVET students will show greater improvement than traditional engineering students in their attitudes towards engineering.

H3. HTVET students will exhibit greater use of deep and strategic learning than traditional engineering students.

H4. HTVET students will show a greater reduction in the use of surface learning than traditional engineering students.

Results and discussion
The results for outcomes 1 (Panel A), 2 (Panel B) and 3 (Panel C) are reported in Table I, comparing the two tracks. Panel A of Table I indicates that HTVET students obtained lower average scores than traditional engineering students on Assessment 1, however, the

<table>
<thead>
<tr>
<th>Measure</th>
<th>Higher TVET</th>
<th>Traditional track</th>
<th>t-values (absolute)</th>
<th>Total</th>
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</thead>
<tbody>
<tr>
<td>Sample size</td>
<td>238</td>
<td>215</td>
<td></td>
<td>453</td>
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<tr>
<td>Panel A: outcome 1</td>
<td></td>
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<tr>
<td>Assessment 1</td>
<td>62.0 (3.5)</td>
<td>65.0 (2.5)</td>
<td>1.28</td>
<td>63.5 (3.0)</td>
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<td>Assessment 2</td>
<td>68.9 (8.3)</td>
<td>59.6 (11.6)</td>
<td>3.89***</td>
<td>63.4 (9.9)</td>
</tr>
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<td>Assessment 3</td>
<td>74.5 (6.2)</td>
<td>62.8 (5.5)</td>
<td>4.36***</td>
<td>69.3 (5.8)</td>
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<tr>
<td>Panel B: outcome 2</td>
<td></td>
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<tr>
<td>Attitudes</td>
<td></td>
<td></td>
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<tr>
<td>Beginning</td>
<td>106.4 (8.3)</td>
<td>108.3 (6.2)</td>
<td>2.96***</td>
<td>107.2 (7.4)</td>
</tr>
<tr>
<td>End</td>
<td>110.8 (5.6)</td>
<td>109.6 (3.8)</td>
<td>2.92***</td>
<td>110.3 (4.5)</td>
</tr>
<tr>
<td>Change</td>
<td>4.4 (1.4)</td>
<td>1.3 (0.5)</td>
<td>3.64***</td>
<td>3.1 (1.0)</td>
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<td>Panel C: outcome 3</td>
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<tr>
<td>Surface learning</td>
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<tr>
<td>Beginning</td>
<td>12.2 (1.9)</td>
<td>12.6 (2.9)</td>
<td>1.28</td>
<td>12.4 (2.4)</td>
</tr>
<tr>
<td>End</td>
<td>10.3 (1.2)</td>
<td>11.8 (1.8)</td>
<td>2.08**</td>
<td>11.1 (1.5)</td>
</tr>
<tr>
<td>Change</td>
<td>−1.9 (0.5)</td>
<td>−0.8 (0.3)</td>
<td>2.72***</td>
<td>−1.3 (0.4)</td>
</tr>
<tr>
<td>Deep learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning</td>
<td>17.9 (3.2)</td>
<td>18.8 (3.6)</td>
<td>1.56</td>
<td>18.2 (3.5)</td>
</tr>
<tr>
<td>End</td>
<td>19.8 (3.9)</td>
<td>18.9 (3.5)</td>
<td>1.99**</td>
<td>19.3 (3.6)</td>
</tr>
<tr>
<td>Change</td>
<td>1.9 (0.6)</td>
<td>0.1 (0.0)</td>
<td>5.36***</td>
<td>1.1 (0.3)</td>
</tr>
<tr>
<td>Strategic learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beginning</td>
<td>15.2 (4.3)</td>
<td>16.3 (4.0)</td>
<td>2.68***</td>
<td>15.8 (4.2)</td>
</tr>
<tr>
<td>End</td>
<td>16.9 (3.8)</td>
<td>16.6 (3.9)</td>
<td>1.57</td>
<td>16.8 (3.8)</td>
</tr>
<tr>
<td>Change</td>
<td>1.7 (0.5)</td>
<td>0.3 (0.0)</td>
<td>4.86***</td>
<td>1.0 (0.3)</td>
</tr>
</tbody>
</table>

Table I. Mean values for students’ performance, attitudes towards engineering and learning styles

Notes: Mean values of the sample are reported in the table. Standard deviation is reported in parentheses. **,** ***Significant at 5 and 1 per cent levels, respectively.
difference was not significant. HTVET students exposed to the PBL curriculum obtained better scores than the traditional students on Assessments 2 and 3. In addition, the failure rates amongst HTVET students using the PBL curriculum were lower relative to their traditional counterparts, although again the difference was not significant.

Panel B of Table I records the results for outcome 2. Initially, traditional engineering students showed a more positive attitude towards engineering \((t = 2.96, p < 0.01)\). Both cohorts showed improved attitudes towards engineering after the implementation of PBL. Interestingly, the HTVET students showed more positive attitudes towards engineering at the end of the course \((t = 2.92, p < 0.01)\).

The results for outcome 3 appear in Panel C of Table I. Both cohorts of students exhibited a reduction in surface learning, but the HTVET students showed a significantly greater reduction. Both cohorts also had higher scores on deep learning, with the HTVET students showing significantly larger improvements. On the pre-test, the HTVET students had significantly lower scores on strategic learning; after the course, their scores were slightly higher than those of their counterparts. The inclination towards strategic learning is a desirable outcome for engineering courses as it leads to self-directed involvement and developing communicative competence. The change in the HTVET students’ scores was significantly greater, suggesting that HTVET students exposed to the PBL method responded better than those enrolled in the traditional programme.

Cronbach’s \(\alpha\) for the attitude test questionnaire was 0.89 and 0.86 at the beginning and end of the semester, respectively, indicating a strong level of consistency. As for the measurement of learning styles via the SPQ, Cronbach’s \(\alpha\) showed moderate levels of consistency for each type of learning style at both the beginning and the end of the semester (surface = 0.58 and 0.56; deep = 0.63 and 0.68; strategic = 0.69 and 0.65). The correlation matrix, provided in Table II, documents a high level of correlation between students’ performance on Assessments 2 and 3. In addition, performance on Assessment 1 had a high correlation with surface learning style. However, performance on Assessment 2 was correlated with deep learning and strategic learning, indicating that the students who adopted these learning styles fared better. In addition, the results also show a correlation between deep and strategic learning, suggesting that the two approaches are interrelated.

To evaluate the relationship between students’ performance on Assessments 1–3 and attitudes towards engineering or learning styles, a linear regression model based on the structural equation modelling method was utilised, which enables the analysis to indicate potential causal links (Schreiber et al., 2006). The results are presented in Figure 3. Male students had a more positive attitude towards engineering \((p < 0.01)\) and fared better on Assessment 2 \((p < 0.05)\). In addition, age was correlated negatively with surface learning \((p < 0.05)\) and positively with deep learning \((p < 0.05)\). Student attitudes towards engineering at the end of the course were influenced by their initial attitudes. Interestingly, students’ attitude towards engineering did not influence their performance on any of the assessments. However, students from the HTVET cohort showed an improved attitude towards engineering \((p < 0.01)\).

<table>
<thead>
<tr>
<th>Assessment 1</th>
<th>Assessment 2</th>
<th>Assessment 3</th>
<th>Surface</th>
<th>Deep</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment 2</td>
<td>0.20</td>
<td>–</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Assessment 3</td>
<td>0.18</td>
<td>0.80***</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>Surface</td>
<td>0.63***</td>
<td>0.32**</td>
<td>0.28*</td>
<td>–</td>
</tr>
<tr>
<td>Deep</td>
<td>0.32</td>
<td>0.43**</td>
<td>0.45***</td>
<td>0.10</td>
</tr>
<tr>
<td>Strategic</td>
<td>0.28</td>
<td>0.50***</td>
<td>0.50***</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Notes: **, ***Significant at 10, 5 and 1 per cent levels, respectively

Table II. Correlation matrix
The results of the linear regression model indicate that learning styles at the end of the course were heavily influenced by their initial learning styles. HTVET students exposed to PBL showed changes in their learning styles, as evidenced by a negative relationship with surface learning \((p < 0.01)\) and a positive relationship with deep learning \((p < 0.01)\) and strategic learning \((p < 0.05)\). This set of results indicates that PBL is a more effective teaching tool in an HTVET course, where the overall hands-on approach is better complemented by the PBL method.

Performance on Assessment 1 was predicted by engagement in surface learning, whilst deep learning predicted the performance on Assessment 2 \((p < 0.05)\) and Assessment 3 \((p < 0.01)\). HTVET students exposed to the PBL teaching style also fared better on Assessment 2 \((p < 0.05)\) and Assessment 3 \((p < 0.01)\) than their counterparts in the traditional model. Again, this analysis suggests that PBL is very effective with HTVET students.

The results provide several interesting implications for higher education institutes offering technical programmes. First, the process of teaching and learning can be enhanced by the implementation of an experiential learning approach, using tools such as PBL. The implementation of these tools should support the development of requisite skills, since the PBL approach encourages HTVET students to adopt deep and strategic learning styles. Furthermore, such a shift would allow better attainment of learning outcomes in individual courses as well as at the programme-wide level, which supports the educational objectives of technical universities. As a result, graduates should become more employable, since these objectives often encompass elements required in the working environment in addition to technical knowledge. However, the analysis in the present study did not directly examine acquisition of soft skills, although it is assumed that there is a high level of correlation between attainment of academic outcomes and achievement of other educational objectives. Nevertheless, the outcomes of this study are sufficient to justify efforts to incorporate experiential learning tools such as PBL more fully in HTVET students’ learning processes.

Incorporation of experiential learning can be accomplished by using web-based PBL as well as actual problems from industry (Shen et al., 2007). One way to bring real-life
problems into the classroom is the establishment of a public–private research network by which technical universities are invited to become involved in solving problems for industry (Remington, 2018). In addition, academics teaching at HTVET institutions must be familiar with industry needs and requirements. Academics lacking such familiarity would benefit from closer partnerships with industry or from pursuing relevant professional engineering qualifications such as the Professional Technologist or Certified Technologist certification awarded by the Malaysian Board of Technologists. Obtaining such professional status could be included as a promotion criterion for academics at technical universities. In addition, course delivery can also be enriched through the involvement of practising engineers.

Furthermore, implementation should consider students’ varying motivations, which range from lower-level needs (i.e., becoming employable upon graduation) to higher-level needs (proving their abilities to colleagues and family members) (Cirstea, 2003). Another way to embed experiential learning in HTVET as well as in other non-applied sciences is by introducing the “teaching factory” concept, which seeks to replicate actual industrial conditions in the university setting (Hasim et al., 2016). This method aims to provide university students with a realistic form of hands-on practice by incorporating actual work requirements from industry into research activities conducted at the university (Rentzos et al., 2014).

Conclusions
Overall, the results indicate that the PBL approach was more effective in helping students in the HTVET programme on Assessments 2 and 3. The findings are consistent with the expectations, given the nature of the HTVET programme. There is no reason to believe that any confounding factors influenced this result, since the sample contained two cohorts of students at the same university with similar entry requirements and the cohorts received instruction from the same group of lecturers. Additionally, Assessments 1 and 2 were conducted simultaneously for both groups of students.

The evidence from this study documents that acquisition of skills and knowledge based on the hands-on approach used in HTVET courses relative to traditional engineering courses is better achieved via the PBL approach, as evidenced by students’ improved attitudes towards engineering as well as a shift in learning styles towards deep and strategic learning.

Although the HTVET students responded better to PBL, performance on Assessments 1 and 2 was also predicted by learning styles. It is thus possible that PBL may play a mediating or moderating role between learning styles and performance for both forms of assessment. Further investigation of this possibility is warranted.

Overall, the findings suggest that exposure to the PBL method has a strong impact on the effectiveness of learning amongst HTVET students and also has a demonstrated ability to alter students’ preferred learning styles. Furthermore, students exposed to PBL can enhance their acquisition of knowledge and skills as well as professional values. This benefit is in line with the goals of most engineering programmes, since graduates are expected to have a strong grasp of mathematics, engineering and science along with soft skills such as communication, teamwork across disciplines, lifelong learning and awareness of social and ethical considerations related to the engineering profession. It is further expected that graduates who have experienced the PBL approach will have improved professional awareness and communication skills, giving them improved marketability and a stronger foundation for becoming high-tech entrepreneurs in the future. In summary, the strong response to the PBL approach by HTVET students suggests that incorporation of this method within HTVET is relevant and important.
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Further reading


**Corresponding author**

Noor H. Jabarulllah can be contacted at: nhafidzah@unikl.edu.my

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Work-readiness integrated competence model  
Conceptualisation and scale development

Verma Prikshat  
School of Management, Cardiff Metropolitan University, Cardiff, UK
Sanjeev Kumar  
School of Management Studies, Graphic Era University, Dehradun, India, and  
Alan Nankervis  
School of Management, Curtin Business School, Curtin University, Perth, Australia

Abstract

Purpose – The purpose of this paper is to conceptualise graduate work-readiness (GWR) and to develop a scale to measure it.

Design/methodology/approach – The methodology entailed the compilation of a literature review and the conduct of qualitative interviews and a focus group to generate items. This study used the “resource-based view” approach to conceptualise a multi-dimensional – “work-readiness integrated competence model (WRICM)” – consisting of four main factors (namely, intellectual, personality, meta-skill and job-specific resources), with a further ten sub-dimensions. Further, a series of tests were performed to assess its reliability and validity.

Findings – A final 53-item WRICM scale covering four dimensions and ten sub-dimensions of GWR was developed based on the perceptions of 362 HR professionals and managers from seven Asia-Pacific countries. The ten sub-dimensions covering 53 work-readiness skills reflect the perceptions of stakeholders regarding the work-readiness of graduates. The scale was found to be psychometrically sound for measuring GWR.

Research limitations/implications – Though the WRICM model is based on the inputs of different stakeholders of GWR (employers, educators, policy makers and graduates), the development of the WRICM scale is based on the perspectives of industry/employers only.

Practical implications – The WRICM model has implications for education, industry, professional associations, policy makers and for graduates. These stakeholders can adapt this scale in assessing the work-readiness of graduates in different streams of education.

Originality/value – The authors believe that the WRICM model is the first multi-dimensional construct that is based on a sound theory and from the inputs from graduate work-readiness stakeholders from seven Asia-Pacific countries.

Keywords Scale development, Graduate work-readiness, Work-readiness construct, Work-readiness scale, Work-readiness model

Paper type Research paper

1. Introduction

In the wake of contemporary requirements from employers, graduate work-readiness (GWR) has emerged as an important criterion for employment and has become increasingly demanded in the development of university graduates’ capabilities (Cavanagh et al., 2015; Hager and Holland, 2006). Graduates are expected to exit their studies in work-ready mode and with demonstrable levels of employability (Clarke, 2018). There has been growing interest in conceptualising GWR during the past few years, accompanied by the development of several measurement instruments to underpin the GWR construct (Caballero et al., 2011; Cavanagh et al., 2015; Coetzee, 2014; Hambur et al., 2002; Jollands et al., 2012; Litchfield et al., 2010; Raftopoulous et al., 2009; Walker et al., 2015). As a construct, GWR is still in its early stages of development and there is both a lack of clarity and consistency regarding what is meant by work-readiness, and also with respect to the general skills and attributes that demonstrate it (Caballero and Walker, 2010). Given the public
policy significance of the topic, it is surprising that the concept remains largely undefined
and flexible, nor is it fully integrated or contextualised within a learning process (Burgess
et al., 2018). Thus, there is a need to provide a valid conceptualisation and to develop an
associated measurement framework.

Extant GWR measures have been developed and validated in country-specific studies
(Caballero et al., 2011; Coetzee, 2014; Hambur et al., 2002; Raftopoulous et al., 2009; Walker et al.,
2015), yet it has not been measured in the context of a specific region (e.g. the Asia-Pacific in
this case). It is worthwhile therefore to propose a measure of GWR for such a region, as the
countries included in this study share similarity in terms of high growth rates; significant
movements of cross-border trade, labour and capital; and most important of all, there have been
large flows of students across borders to access tertiary qualifications (Burgess et al., 2018).

Based on these observations, this study posits a work-readiness integrated competence
model (WRICM) based on a sound theoretical framework, and further systematically
develops a WRICM scale to measure GWR, and to provide an initial assessment of the
exploratory scale’s psychometric properties. The focus of the study is on graduates who
have completed tertiary education programmes, and the discussion therefore focusses on
pre-job entry and graduates who are seeking their first full-time job in industry. The main
purpose for proposing such a model and scale stems from the fact that there is no uniform
model or scale for accurately documenting GWR within the context of escalating and
changing needs in education and practice. GWR can always be considered as outcome
oriented, and the goal is to produce graduates who have effective knowledge and
competence that can be utilised in practical work settings. Although examples of
competency-based assessment are more prevalent in the medical and nursing literature (i.e.
Objective Structured Clinical Examination and Competency Outcomes and Performance
Assessment Model) which assess graduates against a “performance situation”, there is no
similar framework for measuring the work-readiness of graduates from a broad diversity of
disciplines. Considering these observations, a robust work-readiness framework is
warranted that can capture the readiness levels of graduates and can inform future
research to further come up with performance situation-based assessment measures. Thus,
this research proposes the WRICM scale as an effective framework for the full range of core
competencies essential for graduates to be considered “work-ready”. The WRICM
framework has the potential to subsequently create performance-based assessment
measures, similar to those used in medical and nursing contexts that can inform different
stakeholders about the actual levels of work-readiness levels based on the WRICM.

The paper begins with a review of the literature on GWR and discusses various models
and taxonomies of GWR and associated competencies observed in the extant literature,
Together with a consideration of the different measures of GWR reported in earlier studies.
The following section explains the development of the proposed WRICM. The paper then
describes how the qualitative research was conducted in parallel with the literature review
to identify the factor structure of the WRICM framework, and explains the procedures
followed to refine the initial pool of 93 items into the proposed 10-item WRICM construct.
A series of tests were performed to assess its reliability and validity, as well as the
unidimensionality of its constituent dimensions. The final section highlights the usefulness
of the WRICM framework and scale for researchers and managers and concludes with
recommendations for future research.

2. Review of literature
2.1 Graduate work-readiness
The extent to which graduates are work-ready is suggested to be indicative of potential job
performance, success or promotion and career advancement (Atlay and Harris, 2000;
Casner-Lotto and Barrington, 2006). There is a range of terms used in the literature to
describe the notion of GWR, including “graduate employability”, “work-preparedness”, “transferable skills”, “key competencies”, “generic attributes” and “graduateness” (Cabellero and Walker, 2010; Litchfield et al., 2008). These terms allude to the extent to which graduates possess certain skills, knowledge and attributes that contribute to their employability, and enable them to be ready for and successful in the work environment (Kizito, 2010; Walsh and Koetzee, 2010). The GWR construct has been observed to be both different and complementary to more general notions of employability (Loughborough University, 2016), and extant research has cautioned that it should not be dismissed as a low-level construct, or as a merely a substitute rather than a complement to employability (Caballero et al., 2011). For the sake of clarity, an employable graduate is one who possesses a certain set of credentials which match the employer’s required role and person specifications and has the potential to develop further (Dacre Pool et al., 2014), whereas a work-ready graduate has the potential to perform at the required level consistently with minimum supervision and to contribute value to the organisation (Gardner and Liu, 1997).

Previous research has observed that graduates who are work-ready and have the requisite competencies are better prepared for a seamless transition into post-graduation employment and long-term career success (Cavanagh et al., 2015; Clark, 2013; Finn, 2017; Jackson, 2016; Velasco, 2014). Not only does the literature about GWR represent an educator’s perspective but it also focusses on best practices and issues identified by employers. To date, much research has been conducted in establishing various graduate work-ready competencies/skills that employers seek (Ashman et al., 2008; Jackson, 2016; Male et al., 2010; Peng et al., 2016). The possession of relevant competencies – namely, knowledge, attributes, skills, abilities and other attributes – are manifest in graduate employability through the performance of tasks in specific work contexts which result in improved job performance (Coll and Zegwaard, 2006; Gow and McDonald, 2000; Jackson, 2009; Spowart, 2011; Teijeiro et al., 2013). Work-ready graduates are deemed to have acquired these competencies to ensure industry sustainability and high productivity in conditions of intensified global competition (Fenwick and Hall, 2006).

Although there is a consensus amongst concerned stakeholders (educators, employers and graduates) on the importance of identifying the work-readiness competencies of their graduates, the same cannot be said for which graduate competencies are the most important (Bridgstock, 2009; Daniels and Brooker, 2014; Holmes, 2013). Several studies have focussed on detailed breakdowns and taxonomies of particular work-readiness competencies required to enhance graduates’ employability (Burnett and Jayaram, 2012; Casner-Lotto and Barrington, 2006; Griesel and Parker, 2009; Lowden et al., 2011). Moreover, different stakeholders attribute value differently, and vary in terms of the skills, capabilities and competencies articulated by employers as being indicative of GWR (Bridgstock, 2009; Caballero et al., 2011; Cavanagh et al., 2015; Green et al., 2009, Hager and Holland, 2006; Wye and Lim, 2009). It is easy enough to compile lists of GWR competencies, but it is quite a different matter to conduct the research needed to determine whether these competencies are the actual work-readiness attributes sought by graduates and employers to seamlessly integrate them into the workplace. Due to disparities in listed competencies in previous literature (Bridgstock, 2009) and their origins, and a very few attempts to identify the commonalities, limitations and deficiencies between the various lists proposed by different researchers, it is worthwhile to point out the need for a valid GWR model, with a clear set of related competencies and sound theoretical foundations.

2.2 Measurement of graduate work-readiness
Extant research reports very limited evidence for a specific measure of GWR (Caballero et al., 2011; Coetzee, 2014; Hambur et al., 2002; Raftopoulous et al., 2009; Walker et al., 2015). Hambur et al. (2002), for example, developed a scale – the Graduate Skills Assessment
(GSA) – for the measurement of generic skills acquired by graduates through their university experience and which may be relevant to university achievement and future employment. Raftopoulous et al.’s (2009) Work-readiness skills scale was based around the competencies outlined by employers and graduates (oral and written communication, self-discipline, time management, interpersonal skills and teamwork, problem-solving skills and positive work ethics) in the Fasset Sector (finance, accounting, management-consulting and other related financial services organisations) of South Africa. Caballero et al. (2011) subsequently developed a comprehensive measure of the attributes and characteristics of work-readiness in graduate contexts. Four factors, namely, personal characteristics, organisational acumen, work competence and social intelligence were identified as the attributes and characteristics of work-readiness and they further quantified them in terms of a scale – the work-readiness scale (WRS). Coetzee’s (2014) Graduate Skills and Attributes Scale (GSAS) comprised an eight-factor theoretical framework based on Coetzee (2012) which clustered eight graduate skills and attributes into three holistic, overarching attitudinal domains of personal and intellectual development; scholarship, global and moral citizenship; and lifelong learning. Further, based on the findings of Walker et al. (2013) and the 64-item WRS developed by Caballero et al. (2011), Walker et al. (2015) further tested the original WRS and confirmed the theoretical constructs from previous literature (Caballero et al., 2011; Walker et al., 2013) and the validity of the revised WRS-GN (graduate nurse population).

All the above scales have the potential to systematically measure GWR, but they suffer from some limitations. For example, the GSA does not assess the personal attributes and personality traits that may be associated with implementing these generic skills. Coetzee’s (2014) GSAS was predominantly limited to black and female early-career participants in the economic and management sciences field in a South African open and distance-learning (ODL) higher education institution. Similarly, Cabellero and Walker (2010) WRS and Walker et al.’s (2015) WRS-GN samples mainly included graduate engineers and graduate nurses, while Coetzee’s (2014) GSAS was predominantly limited to early-career participants in the arts field in a South African ODL higher education institution.

Another salient limitation of the measurement of GWR concerns the evaluation of requisite work-readiness competencies by the education stakeholders. Although these stakeholders have actively and continuously engaged in the process of redesigning the course curriculum for different educational streams to implement the competency-based outcome-focussed curriculum for preparing work-ready graduates, there is no set of mutually agreed work-readiness competencies or uniformity in assessing them. Thus, keeping in view this shortcoming, and the inability of the above-mentioned scales to be generalised for other disciplinary fields, educational, student, age, race or gender groups, this research proposes a new scale – the WRICM – based on the resource-based view (RBV) theory, that can be operationalised in the contexts of different disciplines and different countries or a specific region.

3. The work-readiness integrated competence model (WRICM)

This study conceptualises GWR in the context of strategic management theory using the “RBV”. It has been posited in earlier research that people are strategically important to firm success, as they are an internal source of competitive advantage (Wright et al., 2001). The human resources of a firm are observed as the pool of human capital under the firm’s control in a direct employment relationship (Wright et al., 1994). Further, the RBV suggests that organisations can create competitive advantage by acquiring or developing resources that are rare, valuable and hard to imitate and replace (Barney, 1991). The Finch et al. (2016) study, following Barney (1991) and Teece et al. (1997), extended this notion further and suggested that employability can be viewed as the complex integration and application of
five specific resources and dynamic capabilities, namely, intellectual, personality, meta-skill, job-specific and integrated dynamic capabilities. Based on Finch et al.’s (2016) categorisation of employability along the RBV, we conceptualise that GWR can be defined as an integrated dynamic competence that requires the reconfiguration, synthesis and integration of four resources/dimensions – namely, intellectual, personality, meta-skill and job specific – that need to be channelled by graduates into a holistic, compelling and personal narrative that appeals to potential employers. We propose this model as a “WRICM” that may serve as a platform for further research into GWR.

Further, the WRICM is proposed as a multi-dimensional model comprising four main factors (dimensions) with ten sub-dimensions covering different skills, derived from a review of the literature and based on interviews and focus groups. The main four factors/dimensions are termed as intellectual, personality, meta-skill and job-specific dimensions. This study further suggests that intellectual resources comprise foundation and cognitive skills, and personality resources include innovation and creativity, leadership and self-management skills. In a similar vein, this study views meta-skills as consisting of information technology (IT), teamwork, political, communication and systems-thinking skills, whereas job resources contain core skills. Figure 1 shows the conceptualisation of our WRICM. The section after Figure 1 discusses the four main dimensions and sub-dimensions in detail.

3.1 Intellectual resources

Intellectual resources are referred to as cognitive skills that are complex, and involve decision making, problem solving, reasoning and knowing how to learn from previous situations (Reid and Anderson, 2012). Earlier research has demonstrated a strong relationship between intellectual resources and employability across a variety of occupations and contexts (Hinchliffe and Jolly, 2011; Scherbaum et al., 2012; Schmidt and Hunter, 2004; Stiwe and Jungert, 2010), thus it appropriately fits as one of the dimensions of GWR.

![Figure 1. Work-readiness integrated competence model (WRICM)](image-url)
3.1.1 Foundation skills. Foundation skills is a term that has been described in the extant literature to describe literacy and numeracy as part of a suite of skills linked to employability (Black and Yasukawa, 2010). Most vocational and higher education courses underpin these foundation skills and employers expect graduates to be proficient in these basic skills to participate in modern workplaces and contemporary life (Durrani and Tariq, 2012; SCOTÉSE, 2012). Foundation skills are necessary for increasing productivity in a highly competitive, globalised economy, and thus it is promoted extensively by governments, industry and skills organisations (Black et al., 2015).

3.1.2 Cognitive skills. Given the World Economic Forum’s (2016) observations that the highest levels of skills stability between 2015 and 2020 are likely to be found in the media, entertainment and information sector, whereas a large amount of skills disruption is expected to happen in the banking sector, industry, infrastructure and mobility (World Economic Forum, 2016), it is argued that the future workforce must have the capacity to deal with more cognitive tasks (Frey and Osborne, 2013). Cognitive skills such as critical thinking, problem solving, decision making and strategic thinking are the skills that a graduate is required to master in order to establish and sustain competent performance in the complex and unpredictable environment of modern-day workplaces.

3.2 Personality resources
The importance attached to personality traits by employers as an indicator of future performance, contributions and career success (Hogan et al., 1996; Wellman, 2010) warrants it to be included as an important dimension of GWR.

3.2.1 Innovation and creativity skills. Innovation and creativity skills involve the ability to be original and inventive, and to apply lateral thinking and to re-conceptualise roles in response to changing demands related to success (Evers et al., 1998, p. 121). Extant research has highlighted that creativity and innovation have become increasingly important in the workplace (Casner-Lotto and Barrington, 2006). Thus, a need exists for graduates to have these skills to adapt to constant change situations at modern-day workplaces.

3.2.2 Leadership skills. Leadership skills include the ability to motivate others to achieve organisational goals and are widely acknowledged as critical in graduates (Casner-Lotto and Barrington, 2006; Archer and Davison 2008; Schermerhorn, 2008). Although there is international debate about whether leadership skills can be developed in the classroom (Posner, 2009), it has also been observed in earlier research that stakeholders consider leadership to be a critical skill for graduates to accomplish job performance (Rosenberg et al., 2012).

3.2.3 Self-management skills. Research has demonstrated that graduates with well-developed career self-management skills experience higher levels of subjective and objective career success after graduation (Bridgstock, 2011). Self-management skills have been referred to as the non-technical skills necessary for getting, keeping and doing well on a job (de Guzman and Choi, 2013; Jackson and Chapman, 2012).

3.3 Meta-skills resources
Meta-skills can also be considered as a dimension of GWR, as recent research has noted these skills to be important predictors of employability (CCCE, 2014; EIU, 2014; Finch et al., 2012).

3.3.1 Information technology (IT) skills. IT skills include the ability to select procedures, equipment and tools to acquire and evaluate data (SCANS, 1991). An increasingly knowledge-intensive industry environment demands graduates who are always at the front of the “technology innovation curve” (Collet et al., 2015). Moreover, in the wake of a gradual decline in the number of skilled and semi-skilled workers in favour of the specialised workforce that is competent in IT and informatics (Ghaith, 2010), IT skills have become vital for graduates.
3.3.2 Teamwork and political skills. Changing models of economic efficiency have placed more emphasis on key skills including teamwork and political skills (Brown, 1999). It is suggested that succeeding in and managing stressful organisational environments, because of the increased social and interpersonal requirements, is at least partially due to the good teamwork and political skills possessed by many executives (Perrewe et al., 2000; Stevens and Campion, 1994). To work effectively together, graduates must possess specific knowledge, skills and attitudes, such as the skill of monitoring each other’s performance, knowledge of their own and teammate’s task responsibilities and a positive disposition towards working in a team (Cannon-Bowers et al., 1995; Salas et al., 2005). Moreover, organisations are often seen as being composed of individuals and groups who pursue their own sometimes incompatible goals, leading to organisational conflict, which is considered inherent and neither “good” nor “bad” (Lee and Piper, 1986). Thus, teamwork and conflict-resolution or internal political skills become an important ingredient for a work-ready graduate. Thus, teamwork and political skills become an important ingredient for a work-ready graduate.

3.3.3 Communication skills. Effective communication skills are an extremely important issue for effective organisational behaviour, relationships and work processes (Conrad and Newberry, 2012). In order to prepare future leaders, educators need to ensure that graduates have the necessary communication skills to begin their career (Lolli, 2013). Moreover, communication skills are ranked as very important by the overwhelming majority of employers in the recruitment, job success and promotion of graduates (McMurray et al., 2016).

3.3.4 System-thinking skills. Systems-thinking skills include the ability to understand and operate within social, organisational and technological systems (Rosenberg et al., 2012). These skills involve designing and suggesting modifications to systems and explaining the interaction of systems in the context of the global economy (Senge, 2000). These skills are reflections of graduates’ system-thinking ability in seeing the “world view” or to be able to see things holistically and as interconnected (Maani and Maharaj, 2004). Hence, system-thinking skills can be categorised as an intermediate work-readiness asset for graduates.

3.4 Job-specific resources
Finally, the inclusion of job-specific resources as an important dimension of this model is based on the fact that employers have indicated in previous research that the graduates must possess the minimum proficiencies required to perform a specific role (Bhaerman and Spill 1988, cited in Finch et al., 2016).

3.4.1 Core business skills. The term “core business skills” is used to describe the transferable skills which underpin competent performance in all fields (Gibbons-Wood and Lange, 2000). In our study “core business skills” is used encapsulate the essential practical skills of a business in which the graduate intends to find an employment. Considering the employment needs of graduates, encapsulated in the core business skills of a specific industry, this becomes an important attribute of GWR.

4. Scale development
This study employed a rigorous approach using both quantitative and qualitative methodology; and further, through factor loadings, construct reliability, average variance extracted and correlation matrix, the scale was developed. To ensure a strong conceptual framework and ensuing scale, this research followed a three-pronged approach. This comprised a review of the literature (to generate an initial pool of items), semi-structured interviews and focus groups. All the respondents (from seven countries) used for generating
the initial items were purposively selected based on their awareness of GWR issues, and on the basis of their position and experience in academia, industry and government. This ensured that the list of chosen items/competencies was robust enough and represented the true work-readiness dimensions needed by the employers.

4.1 Item generation

The first phase comprised the generation of items as per Churchill (1979), based on an extensive review of the literature concerning work-readiness studies from 2006 to 2016. Five research databases, namely, ProQuest, Informit, Emerald journals, together with internet resources (Google and Google Scholar), were searched for publications related to work-readiness. The terms, “work-readiness competencies”, “graduate competencies”, “work-ready graduates” and “work-readiness skills” were searched for to ensure coverage of relevant studies. Only those studies that focussed on the work-readiness/employability or unemployability of graduates were used for finding skills associated with work-readiness.

The second phase comprised conducting semi-structured interviews and focus group discussions in Australia during March and April 2016, to reveal the specific work-readiness skills deemed necessary for entering the workforce. In total, 19 participants were purposively sampled from academia (higher and vocational education), employers/industry, policy makers and graduates from Australian universities. There were 7 individual interviewees (4 from Sydney and 3 from Perth), and 12 participants who participated in focus group discussions in Melbourne, Australia. The participants were selected on the basis of their position and experience in academia, industry and government. All interviews and focus groups were recorded and transcribed, analysed and converted into items. Based on these two phases more than 100 items were shortlisted for graduate work-readiness skills (GWRS).

Further extensive thematic analysis was conducted by using an iterative process that involved moving between the different items, and an emerging structure of corresponding themes following three key steps (Locke, 2003; Miles and Huberman, 1999). In the first step, provisional categories and first-order codes were developed via open coding (Locke, 2003). As theoretical categories were created, data were checked to determine whether the codes fitted the emerging abstractions. Where this was not apparent the “discrepant data” were reviewed and categories were revised accordingly. This process was continued until all authors agreed on the thematic categorisation. The second step involved refining the first-order categories/codes that allowed for the identification of the second-order themes that were non-overlapping (Gioia and Thomas, 1996). The second-order themes were created based on existing literature around similar ideas, issues or observations on GWRS/competencies. Finally, to provide a coherent picture, all the second-order items were merged into ten aggregated competencies.

In the final third phase, the conceptualisation of the WRICM model with probable alignment of 100 shortlisted skills/items along the ten sub-dimensions of the model was presented in a workshop of regional researchers in Vietnam in 2016. The workshop comprised GWR stakeholder participants from seven countries (namely, Australia, India, Vietnam, Singapore, Malaysia, Indonesia and Taiwan). Based on the stakeholders’ discussion and expert comments, a total of 93 items were shortlisted and aligned with the ten sub-dimensions of the WRICM model.

4.2 Questionnaire formulation and content validity

The objective of this step was to formulate a questionnaire and ensure its content validity. In total, 93 GWRS items were shortlisted based on the above-mentioned phases. A review of these final items shortlisted under the ten sub-dimensions was undertaken to avoid redundancy among items as well as exceptionally lengthy items, multiple negatives, double-barrelled items, colloquialisms and jargon (DeVellis, 2016). This process resulted in
retaining a total of 77 items and these items were subsequently transformed into statements in the form of a questionnaire. All items were coded on a seven-point Likert scale ranging from strongly disagree (1) to strongly agree (7). The survey was pilot tested with ten experts from industry, academia and government to validate the instrument. For best possible results, due care was taken to select experts who were well placed to provide expert commentary on the current state of graduates. They were required to comment on the meaningfulness, relevance and clarity of the scales. Based on the experts’ observation various statements in the questionnaire were refined and improved to accurately address a work-readiness skill.

4.3 Item purification, reliability and validity assessment

To determine the factor structure of GWRS items and purify the measurement tool, this research collected data from 362 HR executives/middle-level management executives with the help of research partners from respective country partners in the seven countries (Australia, India, Vietnam, Singapore, Malaysia, Indonesia and Taiwan). Table I shows the demographic information of the 362 responses generated.

Further, the factorability of each data set was established by examining the correlation matrix, the Kaiser–Meyer–Olkin measure of sampling adequacy and the Bartlett test of sphericity (Coakes, 2013). The Kaiser–Meyer–Olkin measure verify the sampling adequacy for the analysis, $KMO = 0.822$, which was well above the acceptable limit of 0.5 (Field, 2013). The Bartlett test of sphericity tests the null hypothesis to check that the original correlation matrix is an identity matrix. Although the sample size was smaller, it was still found to be significant ($< 0.001$). This proved that the data set was suitable for factor analysis.

In order to transform the GWRS items into linear components, and to extract a small number of latent variables (factors) from many observed variables (77 GRWS items), principal component analysis (PCA) with varimax rotation was conducted using IBM SPSS 20. PCA serves well for minimising correlation across factors and maximising within the factors (Hair et al., 1998). In total, 13 factors were extracted as per the MINEIGEN criterion, which means that the eigenvalues of all the factors should be greater than 1. Further, output was examined for communality score for 77 items and the items that had less than 0.50 communality score were eliminated. A total of seven items were removed. Factor analysis was conducted on the remaining items. The resultant factor loadings were examined for low factor loading and high cross-loadings. Items with factor loading $< 0.50$ were removed, and items loading on more than one factor were supposed to have a difference loading of at least 0.20 to be considered distinctive. The choice regarding factor loadings of greater than $\pm 0.5$ was not based on any mathematical proposition but related more to practical significance (Abdullah, 2006). As per Hair et al. (2006, p. 152), factor loadings of 0.5 and above were

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considered significant at $p = 0.05$ with a sample size of 120 respondents ($n = 362$ in this study). Items were included in the factor with the highest loading only if the items were distinctive (Hair et al., 1998), otherwise variables were removed from the subsequent analysis. The series of exploratory factor analysis were conducted until there were no items left with ambiguous loadings. The final analysis resulted in a ten-factor solution, accounting for 70.784 per cent of the variance shared among the remaining 53 items (see Table AI). Table II summarises the ten-factor solution along with loadings and uniqueness of the items that measure each factor.

4.4 Dimension and reliability
To validate the dimensionality of the WRICM, this study performed confirmatory factor analysis using IBM Amos 20. The results confirm the dimensionality of the 53-item, ten-dimension scale ($\text{CMIN} = 3,069.387$), relative $\chi^2$ ($\text{CMIN/df} = 2.40$), root mean square error of approximation ($= 0.06$) and comparative fit index ($= 0.86$). Further, the validity and reliability were examined to check the psychometric properties of the individual constructs (DeVellis, 2016; Reise et al., 2000). The reliability of each scale was assessed by calculating Cronbach’s $\alpha$ composite reliability and average variance extracted. Reliability analysis revealed that the overall scale had good internal consistency, with a Cronbach’s $\alpha$ value of 0.770. The ten factors had good internal consistency with a Cronbach’s $\alpha$ value between 0.86 and 0.94. All constructs surpass the critical levels of 0.70 and 0.50 for composite reliability and AVE, respectively (see Table III).

4.5 Construct validity
All factor loadings were statistically significant and were greater than 0.6, indicating convergent validity. Discriminant validity is attained if the square root of average variance extracted for each factor is greater than the correlation between that construct and other constructs in the model (Chau, 1997; Fornell and Larcker, 1981). This study satisfied this criterion.

5. Discussion
The objective of this study was to develop a theory-based model for GWR and a scale to measure it. To achieve this objective, the study extended and refined the theoretical framework of Finch et al. (2016) and developed the WRICM. The proposed WRICM comprised four main dimensions: intellectual, personality, meta-skill and job specific. These dimensions were further categorised into ten sub-dimensions comprising multiple work-readiness skills based on an extensive review of the literature together with the interviews and focus group discussions. The intellectual dimension included foundation and cognitive skills; personality resources involved innovation and creativity, leadership and self-management skills; meta-skills consisted of IT, teamwork and political, communication and systems-thinking skills, whereas job resources contained core business skills. A series of tests suggests that the scale exhibits internal consistency, reliability and construct validity. Overall the WRICM scale appears to be conceptually sound and psychometrically valid. This investigation explored the multi-dimensional nature of GWR and proposes it as an integrated dynamic competence that requires the reconfiguration, synthesis and integration of four dimensions – namely, intellectual, personality, meta-skill and job specific – that need to be channelled by graduates into a holistic, compelling and personal narrative that appeals to potential employers. The WRICM proposed in this study overcomes two of the key limitations of previous work-readiness models, namely, the absence of a multi-dimensional model based on sound theoretical underpinnings, and the observed disparities regarding the stakeholders of GWR across different competencies mentioned in the literature. First, it is
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Table II. Factor loadings and communalities


Notes: Extraction method: principal component analysis; rotation method: varimax with Kaiser normalisation.
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<th>Construct</th>
<th>No. of Items</th>
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<th>CR</th>
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<th>CBS</th>
<th>CC</th>
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**Notes:** CR, construct reliability; AVE, average variance extracted. Value on the diagonal of the correlation matrix is the square root of AVE.
based on the RBV of strategic management theory; and second, its ten sub-dimensions situated under four main dimensions outline the 53 most important reported skills/competencies that are required by graduates to be work-ready. This model has the potential to assess the work-readiness of graduates across different nationalities, as it has been framed based on inputs from seven country stakeholders, although cross-cultural validation might be necessary to establish its currency.

6. Implications
The WRICM has implications for education, industry, professional associations, policy makers and for graduates themselves. The refinement of existing work-ready skills in the literature through qualitative methodology, and further development of the WRICM and the associated WRICM scale has the potential to guide practitioners, and rule out existing variations in how the competencies/skills that produce work-ready graduates are envisaged by administrators, taught by teaching staff and understood by graduates (Barrie, 2006; Curzon-Hobson, 2004; Green et al., 2009; Tymon, 2013). These stakeholders can further adapt the scale in assessing the work-readiness of graduates in different disciplines and educational streams. Given that the WRICM serves as a diagnostic tool at different levels of analysis, GWR can be assessed at the third-order, second-order and first-order levels. The use of WRICM-based course curriculum and subsequent assessment of graduates at different levels through performance-based assessment has the capacity to identify competence levels and deficiencies. The assessment of WRICM-based competencies (i.e. personality, intellectual, meta-skills or job specific) at different levels of education can encourage its stakeholders to review courses including the review of salient competency outcomes and interactive learning strategies, and can help in establishing solid competency performance assessments and other evaluations. Moreover, employers can identify the work-readiness of graduates at entry levels with the help of WRICM-based assessment, and if needed they can design specialised skills training programmes for improving GWR.

7. Limitations and conclusion
There are number of limitations of this study which are relevant for future research. The first limitation of this research pertains to the fact that the WRICM is supported by a solid literature review and qualitative methodology, but the development of the WRICM scale is based largely on the perspectives of industry/employers. The authors recognise that the development of a GWR measurement scale will be useful for GWR stakeholders, but understand that further assessment instruments based on the ten competencies of WRICM accompanied by actual work performance situations will be needed in order to validate its practical value. Further research in exploring the options for developing sound performance-based methods for assessing the requisite competencies of WRICM is necessary for more concrete assessment of the work-readiness of graduates.

Placing graduates in different performance situations pertaining to each competency of WRICM at different levels (pre-graduation and post-employment) will ensure the effectiveness of the proposed model. However, it should be noted that both educational and industry stakeholders will need to enhance their capacity-building processes so as to accurately assess the graduates' requisite competencies in practical performance situations. Another possible limitation stems from the fact that graduate competencies in this research have been measured based on the perceptions of the HR executives/middle-level executives. The development of an appropriate assessment instrument based on actual work performance situations reflecting the WRICM competencies can overcome this limitation.

Future research should concentrate on a more comprehensive scale that includes the perspectives of all concerned stakeholders of GWR (e.g. educators, policy makers, graduates and even parents in some cases). Second, future studies might consider developing this scale
based on specific industries to measure GWR levels more accurately in different disciplines and workplace contexts. To conclude, GWR is a crucial factor in facilitating the transition of graduates from education to work. This study offers a refined, focussed and theoretically sound multi-dimensional GWR model that offers researchers and practitioners a solid foundation upon which further studies can be based. The study also presents a conceptually sound and psychometrically valid WRICM scale.

References


Further reading


Corresponding author
Verma Prikshat can be contacted at: vermaprikshat@gmail.com
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<tr>
<th>Dimensions</th>
<th>Sub-dimensions</th>
<th>S. no.</th>
<th>Code</th>
<th>Skills list/items</th>
<th>Statements</th>
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<td>Job specific</td>
<td>Core business</td>
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<td>CBS_10</td>
<td>Working under pressure</td>
<td>Ability to cope up with work pressure</td>
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<td>skills</td>
<td>2</td>
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<td>Commercial awareness</td>
<td>Understanding of the industry (in which graduates intend to work)</td>
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<td>3</td>
<td>CBS_2</td>
<td>Organisational awareness</td>
<td>Understanding of people-organisation relationship, and the social systems</td>
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<td></td>
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<td>4</td>
<td>CBS_3</td>
<td>Knowledge of industry operations/prior exposure</td>
<td>Prior understanding/awareness of nature of industry</td>
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<td>5</td>
<td>CBS_4</td>
<td>Adaptability</td>
<td>Ability to change or be changed to fit or work better in different situations</td>
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<td></td>
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<td>6</td>
<td>CBS_5</td>
<td>Attitude/Aptitude</td>
<td>Tendency to respond positively towards a certain idea/situation</td>
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<td>CBS_6</td>
<td>Management skills</td>
<td>Ability to manage, inspire, motivate and engage</td>
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<td>8</td>
<td>CBS_7</td>
<td>Professional ethics</td>
<td>Ability to demonstrate corporate standards of behaviour</td>
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<td>Multi-tasking</td>
<td>Ability to perform more than one task/activity over a short period</td>
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<td>Capacity to provide useful information to other people and receiving information that will help to learn more effectively</td>
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<td>ICT literacy</td>
<td>Ability to use digital technology, communication tools, and/or networks to define access, manage, integrate, evaluate and create value</td>
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<td>Ability to use digital technology ethically and legally to function in a knowledge organisation</td>
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<td>System-</td>
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<td>Big picture</td>
<td>Ability to view a broad, overall view or perspective of an issue or problem</td>
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<td>STS_4</td>
<td>Social/Psychological outcomes</td>
<td>Understanding that work systems produce both physical products/services and social/psychological outcomes</td>
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<td>TPS_2</td>
<td>People/Interpersonal skills</td>
<td>Ability to moderate responses, empathising, building relationships of and productive interactions</td>
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<td>political skills</td>
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<td>TPS_4</td>
<td>Social skills/intelligence</td>
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<td>Capacity to be aware of, control, and express one's emotions and to handle interpersonal relationships judiciously and empathetically</td>
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<td>CS_1</td>
<td>Problem solving</td>
<td>Skillful in conceptualising, applying, analysing, synthesising evaluating information gathered from, or generated by, observation, experience, reflection, reasoning or communication, as a guide to belief and action</td>
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<td>CS_2</td>
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<td>Analytical abilities</td>
<td>Ability to use language, numbers, images and other means to understand and use the dominant symbol systems of an organisation</td>
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<td>Ability to make a good decision based on weighing the positives and negatives of each options/alternatives that are sensible given the available information</td>
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<td>Ability to reason and to apply simple numerical concepts</td>
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<td>CS_6</td>
<td>Evaluation skills</td>
<td>Ability to show initiative and resourcefulness for accomplishing different tasks/activities</td>
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<td>32</td>
<td>CS_7</td>
<td>Convergent reasoning</td>
<td>Knowledge and experience required in identifying and understanding cause-and-effect relationships between symptoms and their underlying sources</td>
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<td>CS_8</td>
<td>Diagnosing capabilities</td>
<td>Solving problems through an indirect and creative approach, using reasoning that is not immediately obvious and involving ideas that may not be obtainable by using only traditional step-by-step logic</td>
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<td>CS_9</td>
<td>Lateral thinking</td>
<td>Ability to access, understand, analyse and evaluate information, make meaning, express thoughts and emotions, present ideas and opinions</td>
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<td>Personality</td>
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<td>Numeracy</td>
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<td>Literacy</td>
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<td>37</td>
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<td>Formal qualifications</td>
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<td>ICS_1</td>
<td>Innovative and creativeness</td>
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<td>Change management</td>
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<td>41</td>
<td>ICS_4</td>
<td>Willingness to learn new things</td>
<td>Always ready to learn, grasp new approach/ways of doing things</td>
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<td>42</td>
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<td>Idea generation</td>
<td>Ability of creating, developing, and communicating ideas which are abstract, concrete or visual</td>
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<td>Leadership</td>
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<td>LS_1</td>
<td>Logical thinker</td>
<td>Ability to clearly move from one thought/idea to another</td>
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<td>Ability to envision and plan for future</td>
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<td>Influencing others</td>
<td>Ability to change minds, shape opinions and move others to act</td>
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<td>Ability to supervise and maintain relationships in internal organisation as well as with external stakeholders</td>
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<td>Self-management</td>
<td>47</td>
<td>LS_5</td>
<td>Initiative</td>
<td>Ability to assess and initiate things independently</td>
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<td>Personal presentation</td>
<td>Ability to convey a positive image to organisation members and to the stakeholders</td>
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<td>Positive self-esteem</td>
<td>Ability to portray a healthy self-esteem and notion of high self-value</td>
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<td>Self-motivation</td>
<td>Ability to do what needs to be done without influence from other people or situations</td>
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<td>51</td>
<td>SMS_5</td>
<td>Self-confidence</td>
<td>A sense of belief or trust in own ability</td>
</tr>
<tr>
<td></td>
<td></td>
<td>52</td>
<td>SMS_7</td>
<td>Time management</td>
<td>Ability to exercise conscious control of time spent on specific activities, especially to increase effectiveness, efficiency or productivity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>53</td>
<td>SMS_9</td>
<td>Self-regulation</td>
<td>Ability to monitor and control own behaviour, emotions, or thoughts, and altering them in accordance with the demands of the situation</td>
</tr>
</tbody>
</table>
Graduate readiness for the employment market of the 4th industrial revolution

The development of soft employability skills

Weili Teng
Business School, College of Business Law and Social Sciences, Nottingham Trent University, Nottingham, UK

Chenwei Ma
Department of Public Administration, Sichuan University, Chengdu, Sichuan, China, and Saeed Pahlevan Sharif and Jason James Turner
Taylor’s University, Subang Jaya, Malaysia

Abstract

Purpose – The purpose of this paper is, first, to examine student perspectives of their university experience in terms of the soft employability skills they develop; second, how prepared those students feel for the future employment market and finally investigate whether there are differences in perceptions between Chinese and Malaysian students given their different educational experience.

Design/methodology/approach – In this study, 361 predominantly Chinese undergraduate students at two universities, one in China and the other in Malaysia completed the 15-item Goldsmiths soft skills inventory using an online survey.

Findings – The results, analysed using factor analysis and confirmatory factor analysis, indicated that the university curriculum develops student soft skills, particularly in the Malaysian university and supports the relationship between soft skill and student preparedness for employment. The results also indicate that compared with the respondents from the Chinese university, the Malaysian university respondents were more likely to be positive to statements concerning their respective university’s ability to develop their soft skills.

Research limitations/implications – Such findings have implications for education providers and business in that it is important for universities to embed soft skills into the curriculum in order to develop graduate work readiness.

Originality/value – What this research contributes is not only consolidation of existing research in the contemporary context of a disruptive jobs market, it takes research forward through analysing student perceptions from two universities, one in Malaysia and the other in China, of the skills they develop at university and the importance of soft skills to them and their perceptions of future employment and employability. Such research will provide insight, in particular, into the role of education providers, the phenomena of underemployment among graduates in China, and be of practical significance to employers and their perception that graduates lack the necessary soft skills for the workplace (Anonymous, 2017a; Stapleton, 2017; British Council, 2015; Chan, 2015).

Keywords 4th Industrial revolution, Graduate skills gap, Academic curriculum, Soft employment skills

Paper type Research paper

Introduction

Youth unemployment (those aged 15–24) is a global issue, with this segment of the workforce exhibiting three times the unemployment than that of adults (Ibrahim and Mahyuddin, 2017). In 2017 global youth unemployment was estimated to be around 13 per cent (Anonymous, 2017b). Focusing on the two countries, which provide the context to this research, Malaysia and China, the figures, although lower that the global average, are still considered high with 10.8 per cent of the Malaysian and Chinese youth, unemployed in 2017 (Halim, 2018; Statista, 2018). Investigating the “(youth)” unemployment further to examine graduates in particular,
according to a recent Malaysian Ministry of Education report, only 53 per cent of the 273,373 graduates in 2015 secured employment within six months of graduation, 24 per cent of graduates were unemployed and 18 per cent engaged in tertiary studies (Shanmugam, 2017). The reasons cited for only 53 per cent securing employment, were the “mismatch between the training provided at universities and skill sets required by employers. Most university curriculum does not reflect the current skill requirements” (Shanmugam, 2017). In comparison, the unemployment rate of graduates in China would appear at least superficially, to be better than their Malaysian counterparts, with only 8.4 per cent of Chinese graduates finding themselves unemployed (Stapleton, 2017). However, the main issue surrounding graduate employment and unemployment in China appears to be around underemployment with many graduates finding only low-paid and/or part-time employment, lacking the soft skills for the workplace (Anonymous, 2017a; Stapleton, 2017; British Council, 2015; Chan, 2015). It is this point in particular which underpins this research, investigating the extent to which graduates lack the soft skills required for employment.

How higher and further educational establishments prepare students for employment, often referred to as the “(graduate skills gap)” has been a topic much discussed in the academic literature (Stapleton, 2017; Chan, 2015; Andrews and Higson, 2008; Yunus and Li, 2005). However, despite the discussion there still appears to be a lack of an accepted “(best way)” to equip students with the necessary “(hard)” skills required for employment and even less discussion of how best to equip graduates with the “(soft)” skills needed in an ever changing and disruptive job market (Chamorro-Premuzic et al., 2010; Turner and Mulholland, 2017). This research will explore the growing importance of soft skills in business and assess, through student perceptions from two universities, whether such skills are being developed in a university curriculum and how prepared, they feel for employment.

**Literature review**

The fourth industrial revolution is an all-encompassing phrase, which refers to current and future developments in the use and usability of technologies, which are capable of transforming the workplace (Beraza, 2018; Elliott, 2017; Morgan, 2016; Schwab, 2016; Van Hooijdonk, 2017). Although the impact of these developments on the employment opportunities of graduates is not yet clear, it is likely that the fourth industrial revolution will create new jobs and unemployment in relatively equal measure. It is also likely that the impact of unemployment will be felt most among the low skilled and lower educated (Marr, 2016; Schwab, 2016) although according to Chui et al. (2016) no sector or employment class will be exempt from the effects of the fourth industrial revolution which has obvious implications for today’s students and future graduates.

**Soft employability skills**

With the advent of this latest revolutionary phase of automation, the employability skills set required from graduates will inevitably shift from being more technically focused towards being more social and softer in nature (Kahn, 2017; National Center for O*NET Development for USDOL, 2017). In other words moving the skills focus away from simply developing hard skills which include team-work, project management, leadership, communication, creative thinking and problem solving, towards the development of soft skills (Turner and Mulholland, 2017; Department for Business Innovation and Skills, 2015; Fiala et al., 2014; Draycott and Rae, 2011; Jones and Iredale, 2010).

Soft skills have been defined as “skills, abilities and traits that pertain to personality, attitude and behaviour rather than to formal or technical knowledge” (Moss and Tilly, 1996, p. 253) and are associated to interacting with other people and demonstrating social skills, including confidence and self-reflection (Beard et al., 2007; Bennett et al., 1999; Clarke, 2016; Gallivan et al., 2004; Jameson et al., 2016; Rao, 2014; Rao, 2013; Sail and Alavi, 2010). That is
not to say that hard skills are no longer important, rather digital disruption will necessitate
the need for graduates to be multi-skilled, with social skills required to be infused with
technical expertise (Sail and Alavi, 2010). According to a recent study by Development
Economics Ltd (2015) on behalf of McDonald’s UK, employers believed there was a soft
skills gap in the UK workforce, with employees potentially held back because of a lack of
these soft skills (Development Economics Ltd, 2015). According to employers, young people
were particularly lacking the soft skills required for employment (British Chamber of
Commerce, 2014). Underlying the global nature of this problem, similar findings are revealed
in Asia and China, with Governments and employers encouraging universities to introduce
soft skills to the undergraduate curriculum in an attempt to address an identified “(soft
skills gap)” (British Council, 2015; Chan, 2015; Lee, 2016; Shakir, 2009).

In the Asian education system, there is a belief that rote learning and drilling students in
an academic context can better prepare graduates for the workplace with exam performance
perceived as an almost necessary and non-negotiable part of education (Teng and Turner,
2018). This focus on rote learning, memorising and regurgitating information through
assessments and terminal exams arguably encourages surface learning as opposed to deep
learning (Fry et al., 1999) and is not conducive with encouraging the development of soft
skills among students. Up until recently, the Chinese education system appeared to have
made limited changes in its approaches to teaching and learning (Jin and Cortazzi, 2008)
with Chinese universities still preoccupied with the more “(hard)” technical and quantifiable
skills, developed through the study of theory and knowledge written in academic texts
(Shouse and Ma, 2015). In the past ten years, however, both the Malaysian and Chinese
Governments have introduced measures to address the issue of soft skills deficiencies in the
curriculum and the employability skills gap of graduates. Malaysia has introduced various
talent initiatives (Kumar, 2016) and China introduced “(Suzhi Jiaoyu (quality-oriented
education))”, to better prepare students with the attributes and personality traits for
interpersonal interactions (Kipnis, 2011). Unfortunately, the skills gap appears to remain a
challenge for education providers not only in Malaysia and China but globally, with recent
studies reporting that many graduates feeling ill prepared for work, lacking the necessary
soft skills (Verma et al., 2018; British Council, 2015; Chan, 2015).

The role of education providers
The Chinese education system in particular not only lacks development of a student’s soft
skills, it also lacks an “(applied)” dimension which was one of the reasons behind the
introduction of the “(Reform of Undergraduate teaching quality and teaching reform project in
Colleges and Universities)” (MOE, 2011) by the Ministry of Education of China in 2011. With
this initiative universities and colleges were to encourage faculty and students to take part in
the National College Students’ Innovation and Entrepreneurship Training Programme
(simplified as NCSIE) (Shah et al., 2015). The programme aimed at integrating various kinds of
experimental and practical teaching resources to enhance university students’ innovation and
entrepreneurial ability so that they could solve practical problems in the real world (MOE,
2011). While such initiatives are to be welcomed they represent “(pockets of good educational
practice)” and perhaps do not address a more fundamental issue regarding preparing the
graduate for the employment market of the future.

When the research examines the interplay between the individual, the business and the
labour market it can be observed that for graduates to remain competitive, the demonstration
of academic intelligence is no longer enough. Graduates need experience, the ability to be
mobile, to be able to solve complex issues, to possess the correct attitude and aptitude to meet
the changing job categories, technological advancements and variations in how we assess
task and skill (Biot, 2017; Autor, 2014, 2013; Yunus and Li, 2005; Yusof and Jamaluddin, 2015).
The needs of business have changed, as have the learning needs of students and therefore the
onus is on education providers to be the conduit of this change (Lodder, 2016), able to educate a workforce capable of making an economic contribution to society (Development Economics Ltd, 2015; Knight and Yorke, 2002).

Given the fourth industrial revolution is evolving at such an accelerated rate (Elliott, 2017) it is becoming more problematic to forecast and predict the future which actually presents not only challenges, but also opportunities for education providers to rethink the traditional approaches to teaching and learning. Many universities, including the ones, which are the focus of this research, have disrupted their curriculum, embedding flexibility, cross-disciplinary learning and curriculum choice. One institution has introduced a new curriculum framework where graduates will become multi-skilled, globally and culturally adaptive and flexible to high job mobility through a curriculum of choice and employer-led initiatives. The other institution encourages students to study at least two “(innovative credits)” over the course of their studies, which include a summer internship or other outdoor internship, entrepreneurship training or employment skill training or practice. These institutions both reflect a changing employment market, where concepts such as design thinking, creativity, information and communications technology (ICT), problem solving, data and digital management, and the user experience (UX) are becoming the norm (Ghosh, 2017; Jameson et al., 2016; Knemeyer, 2015; Sani, 2017; Stigliani, 2017). These concepts, which reflect the trends in the employment market, compliment some university curricula already focused on increased engagement with business through work-based learning (WBL), internships, simulations and real-world assessments (Galloway et al., 2014; King and Newman, 2009; Renganathan et al., 2012; Turner et al., 2018; Vos and Brennan, 2010).

Goldsmiths soft skills inventory
Preparing the graduate for the workplace is more than simply engaging with business, education providers have to furnish the learner with a skills set which is difficult to automate, focusing on the complexity of social and human interaction and the self (Ariely, 2017; Chui et al., 2016). The “ability to recognise the meanings of emotion and their relationships and to reason and problem-solve on the basis of them” (Mayer et al., 2001, p. 234) are considered important skills in today’s disruptive market, contextualised in the broader set of soft employability skills. The Goldsmiths soft skills inventory of 15 capabilities which was developed to investigate academic achievement, skills and job desirability following graduation was considered a suitably robust model of soft skills in which to test whether such soft skills were being developed through two university curriculum and the relationship with a student’s preparedness for employment (Chamorro-Premuzic et al., 2010). The Goldsmiths soft skills inventory was based on a review of other models and classifications, specifically the work of Beard et al. (2007), Gallivan et al. (2004) and Bennett et al. (1999) and reflects The World Economic Forum’s (WEF) top ten skills for employment by 2020 (Wilson et al., 2017). The inventory included, self-management, communicational, interpersonal, team-working skills, the ability to work under pressure, imagination/creativity, critical thinking, willingness to learn, attention to detail, taking responsibility, planning and organising skills, insight, maturity, professionalism and emotional intelligence (Chamorro-Premuzic et al., 2010). This research will use the model in the field of employability, using a confirmatory factor analysis, to address the following hypotheses which emerge from the main aims of this research, that of student perspectives of their university experience in terms of the soft skills they develop and how prepared those students feel for the future employment market. This research will also reveal any differences in perceptions between Chinese and Malaysia students regarding their preparation for future employment. The findings will help us to explore further, whether educational culture influences students perceptions:

H1. There is a relationship between soft skills and student preparation for employment.
H2. The university curriculum develops graduates soft skills.

H3. There is a difference between Malaysian and Chinese students in the development of soft skills.

Research into the importance of soft skills to a graduates employability prospects and academic performance has been done previously (Bennett et al., 1999; Chamorro-Premuzic et al., 2010; Coetzee and Beukes, 2010; Jameson et al., 2016; Pool and Sewell, 2007; Yorke and Knight, 2006), albeit not exhaustively. What this research contributes is not only consolidation of existing research in the contemporary context of a disruptive jobs market, it takes research forward through analysing student perceptions from two universities, one in Malaysia and the other in China, of the skills they develop at university and the importance of soft skills to them and their perceptions of future employment and employability. Such research will provide insight, in particular, into the role of education providers, the phenomena of underemployment among graduates in China, and be of practical significance to employers and their perception that graduates lack the necessary soft skills for the workplace (Anonymous, 2017a; Stapleton, 2017; British Council, 2015; Chan, 2015).

Methodology
Between April and May 2018, the research surveyed 361 undergraduate business school degree students at universities in Malaysia (n = 166) and China (n = 195). The institution in China was located in Chengdu and the institution in Malaysia was located in Selangor. Both institutions had relatively similar Business School cohort sizes and student staff ratios, but varied in terms of history with the Chinese institution having been founded over 100 years ago whereas the Malaysian institution had only been in existence for just under 50 years. For the survey, the research used a google form for students of the Malaysian institution and Wenjuanxing, a Chinese equivalent to google form, for students in the Chinese institution. These online surveys allowed the research to gain insight into student perspectives of their university experiences in terms of the employability skills they develop and how prepared those students felt for the future employment market. The sampling method was a non-probability, convenience approach, as the Business School students involved in the study were conveniently available to participate in the research, i.e. those students who attended business classes during these two weeks of the academic term and were willing to complete the survey. All respondents were in the middle of their academic studies and largely representative of business and management students at the two universities where the research was conducted.

To address the issues of understandability and reliability of the survey instrument, a pilot study was conducted with ten business school students at the universities and translated into mandarin; a Cronbach’s α coefficient test was performed of the data, revealing good internal consistency with a figure of 0.945. Although respondents in the pilot study understood the wording of the questions and did not think there were any misleading or redundant questions two additional questions were suggested by the majority of pilot respondents and following reflection from the researchers, included in the final version of the online survey. The first suggestion was to add the question, “I feel my university develops the skills I need to get employment”, this was to support the question, “I feel my university prepares me for future employment”. The rationale for this additional question was to allow the research to distinguish between the university’s ability to develop the skills required for employment and the university’s ability to simply prepare them for employment. The second suggestion was to add the question, “I feel developing my softer employment skills at university will help me get employment”, this question was argued to support the question, “I feel my soft employment skills are being developed at my university”. The majority of respondents argued that adding this question would allow the
research to gain understanding of the soft skills respondents develop during their studies as well as to understand whether respondents thought those soft skills would assist them to gain employment.

Results and discussion
In terms of the respondent demographics, 165 (107 from the Malaysian institution and 58 from the Chinese institution) were male and 196 (88 from the Malaysian institution and 108 from the Chinese institution) were female. Students were drawn from across a range of business and management programmes. However, because of the nature of the academic programmes at the institutions, with students able to study more than one discipline in their degrees, the number of variations was such that this research did not consider classifying responses based on the degree students were taking.

Employability skills developed at university – comparing Malaysian and Chinese perspectives
The majority of respondents agreed that their respective universities prepared them for the employment market and with the necessary skills to secure a job. Overall 64 per cent agreed and strongly agreed that their university prepared them for the employment market, with only 15.8 per cent disagreeing or strongly disagreeing. A similar pattern can be seen from the responses to the question on whether respondents felt their university developed the skills they needed to get employment, with 67.6 per cent agreeing and strongly agreeing and 13.5 per cent disagreeing and strongly disagreeing. However, the results of conducting a Mann–Whitney U test to compare the responses across the two universities showed that the respondents from the Malaysian university had a higher level of agreement to the statements than the respondents from the Chinese university (see Table I). This result is perhaps a little surprising given universities in China, and the one involved in this study have been attempting for a number of years to integrate teaching processes and allocate resources to enhance university students’ work-based skills and ability to interact with others (Kipnis, 2011; MOE, 2011). However, it is more likely that such institutional-led initiatives have not permeated across all programmes and modules, with the underlying teaching and learning philosophy of memorisation and academic study of books and theory rather than practice (Jin and Cortazzi, 2008; Shouse and Ma, 2015) still very much engrained in the Chinese academic curriculum.

Goldsmiths soft skills inventory – comparing Malaysian and Chinese perspectives
In order to understand the role the university curriculum plays in developing a student’s soft skills set and how each of these skills contributes to graduate employability the research conducted analysis of identified skills both individually and collectively. In the first instance the research-examined levels of agreement to statements relating to Goldsmiths soft skills inventory of 15 variables (Chamorro-Premuzic et al., 2010). This revealed that

<table>
<thead>
<tr>
<th>Questions</th>
<th>Chinese University (n = 195)</th>
<th>Malaysian University (n = 166)</th>
<th>Difference between the universities z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel my university prepares me for the future employment market</td>
<td>2.1 (0.7)</td>
<td>2.9 (1.0)</td>
<td>7.669***</td>
</tr>
<tr>
<td>I feel my university develops the skills I need to get employment</td>
<td>2.0 (0.6)</td>
<td>2.8 (1.0)</td>
<td>7.373***</td>
</tr>
</tbody>
</table>

Notes: ns p >0.1; *p < 0.05; **p < 0.01; ***p < 0.001; ****p < 0.1

Table I. Preparing students for employment, comparing Malaysian and Chinese Universities
among the 361 respondents, there was a high level of agreement to statements concerning the universities ability to develop those identified soft skills (see Table II); it also revealed that levels of agreement were higher for respondents from the Malaysian university compared to the Chinese university, results which partially support H3.

The research observes that the majority of respondents agree that their respective universities develop their communication, team-working, critical thinking, planning skills, the ability to provide insight, self-management, interpersonal skills, ability to work under pressure, their imagination and attention to detail. However, the students from the Malaysian university had higher levels of agreement to statements, in particular to the soft skills of communication, team working, critical thinking, planning skills and insight. This is a recurring theme in this research and supports the literature, which argues that in the Chinese education system, students are encouraged to memorise materials in order to receive better assessment grades, a practice which is considered surface learning (Teng and Turner, 2018). In a surface learning approach, students are not encouraged to provide critical insight or apply critical thinking to scenarios with communication one-way rather than two-way (Fry et al., 1999). This learning approach could explain why the students from the Chinese university were less agreeable to statements concerning the soft employability skills they felt they were developing whilst at university.

<table>
<thead>
<tr>
<th>Questions</th>
<th>Chinese University ($n = 195$) Mean (SD)</th>
<th>Malaysian University ($n = 166$) Mean (SD)</th>
<th>Difference between the universities z-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel my university has developed my self-management skills</td>
<td>2.1 (0.7)</td>
<td>2.5 (1.0)</td>
<td>4.005***</td>
</tr>
<tr>
<td>I feel my university has developed my communication skills</td>
<td>2.0 (0.8)</td>
<td>2.3 (1.0)</td>
<td>2.999**</td>
</tr>
<tr>
<td>I feel my university has developed my team-working skills</td>
<td>1.9 (0.7)</td>
<td>2.2 (1.0)</td>
<td>3.288**</td>
</tr>
<tr>
<td>I feel my university has developed my interpersonal skills</td>
<td>2.1 (0.7)</td>
<td>2.3 (0.9)</td>
<td>2.130*</td>
</tr>
<tr>
<td>I feel my university has developed my ability to work under pressure</td>
<td>2.0 (0.8)</td>
<td>2.2 (1.0)</td>
<td>2.052*</td>
</tr>
<tr>
<td>I feel my university has developed my imagination</td>
<td>2.5 (1.0)</td>
<td>2.8 (1.1)</td>
<td>3.236**</td>
</tr>
<tr>
<td>I feel my university has developed my critical thinking skills</td>
<td>2.1 (0.8)</td>
<td>2.5 (1.1)</td>
<td>3.526**</td>
</tr>
<tr>
<td>I feel my university has developed my willingness to learn</td>
<td>2.2 (0.8)</td>
<td>2.4 (1.1)</td>
<td>1.852****</td>
</tr>
<tr>
<td>I feel my university has developed my attention to detail</td>
<td>2.2 (0.7)</td>
<td>2.3 (1.0)</td>
<td>1.262ns</td>
</tr>
<tr>
<td>I feel my university has developed my planning skills</td>
<td>2.0 (0.7)</td>
<td>2.3 (1.0)</td>
<td>2.628**</td>
</tr>
<tr>
<td>I feel my university has developed my ability to take responsibility</td>
<td>1.9 (0.7)</td>
<td>2.3 (0.9)</td>
<td>3.613***</td>
</tr>
<tr>
<td>I feel my university has developed my insight</td>
<td>2.1 (0.7)</td>
<td>2.5 (1.1)</td>
<td>3.567***</td>
</tr>
<tr>
<td>I feel my university has developed my professionalism</td>
<td>2.0 (0.7)</td>
<td>2.2 (0.9)</td>
<td>0.702ns</td>
</tr>
<tr>
<td>I feel my university has developed my levels of maturity</td>
<td>2.0 (0.7)</td>
<td>2.0 (0.9)</td>
<td>1.167ns</td>
</tr>
<tr>
<td>I feel my university has developed my emotional intelligence</td>
<td>2.1 (0.8)</td>
<td>2.2 (0.9)</td>
<td>0.634ns</td>
</tr>
</tbody>
</table>

Table II. Developing soft skills, comparing Malaysian and Chinese Universities

Notes: ns $p \geq 0.1$; *$p < 0.05$; **$p < 0.01$; ***$p < 0.001$; **** $p < 0.1$
The one capability where both sets of students exhibited lower levels of agreement was in the context of the university developing their imagination. This result is perhaps surprising given the high levels of agreement towards the university’s ability to develop other soft skills, and the fact the universities, particularly the Malaysian university, spend a significant amount of time and resources engaging with business and experiential learning which are meant to enhance a student’s ability to be imaginative. The reasons for lower levels of agreement to the university’s ability to develop a student’s imagination will be examined as part of a future study, which investigates the role of physical and virtual learning spaces. However, this research can interpret that the current curriculum at both universities does not specifically address the development of a student’s imagination. Although both universities engage in internships and training, arguably to stimulate a student’s imagination, there perhaps needs to be modules specifically related to design thinking and the user experience (Ghosh, 2017; Jameson et al., 2016; Knemeyer, 2015; Sani, 2017; Stigliani, 2017). Such modules allow students more “(out of the box thinking)” and are recognisably different from the creative thinking theme found in many of the current modules at both institutions.

With regards those other soft skills from Goldsmiths soft skills inventory, which are more related to a level of emotional maturity, a similar pattern emerges with the majority of students agreeing that their university curriculum develop their willingness to learn, their ability to take responsibility, their professionalism, their maturity and emotional intelligence. Similarly, to previous responses, students from the Malaysian university exhibited higher levels of agreement to statements relating to the ability to take responsibility (quasi-significant) when compared to their Chinese counterparts. Taken collectively these results indicate that students agree that their respective universities develop their identified 15 soft skills, an observation supported by the fact that when asked the question “(I feel my soft employment skills are being developed at my university)”, the majority of respondents (72.8 per cent for the Malaysian university and 51.2 per cent for the Chinese university) agreed and strongly agreed. The levels of agreement also underline the fact that students at the Chinese university do not think they are developing these soft skills during their studies as much as their Malaysian counterparts, which support the literature (Shouse and Ma, 2015; Chan, 2015; Fry et al., 1999) and may have implications on their future job prospects at least in the initial transition from graduation to employment.

Goldsmiths soft skills inventory – factor analysis
To analyse the data further and address the research hypotheses, the study conducted a factor analysis and confirmatory factor analysis. Prior to this analysis, the data were randomly split into two data sets consisting of 181 and 180 samples to filter out cases from the data set. A maximum likelihood exploratory factor analysis (EFA) was then conducted on the items of the scale using the first data set. The value of Kaiser–Meyer–Olkin (0.936) and the results of Bartlett’s test of sphericity ($\chi^2 = 1,889.326, df = 105, p < 0.001$) supported the adequacy of the sampling. The examination of the scree plot and considering factors with eigenvalue greater than one indicated that there was one factor consisting of 15 items accounting for 54.119 per cent of the variance (Table III). All items had a factor loading greater than 0.5 (ranges from 0.644 to 0.833) and statistically significant at 0.001. The items showed good internal consistency (Cronbach’s $\alpha = 0.945$).

A maximum likelihood confirmatory factor analysis (CFA) was performed on the data to confirm and validate the factor structure obtained from the EFA using the second data set consisting of 180 samples. The final model, shown in Figure 1, was constructed following a review of the model modification indices for sources of model misfit. Eight pairs of the items measurement errors were allowed to freely covary. The measurement model showed a good fit.
$\chi^2(82) = 173.73, p < 0.001, \chi^2/df = 2.119$, goodness-of-fit index (GFI) = 0.888, comparative fit index (CFI) = 0.944, incremental fit index (IFI) = 0.945, Tucker–Lewis index (TLI) = 0.929, normed fit index (NFI) = 0.901, root-mean-square error of approximation (RMSEA) = 0.079, and standardized root mean square residual (SRMR) = 0.045. All item loadings were greater than 0.5 and significant at 99% confidence level ($z$-value ranges from 6.970 to 9.103). Moreover, the construct showed a good construct reliability and convergent validity (composite reliability = 0.937, average variance extracted = 0.499) (Pahlevan Sharif et al., 2018).

In order to test the invariance of the model across the two different locations, using the second data set, this study conducted multi-group analysis to compare the final model
among respondents in Malaysia ($n = 104$) and China ($n = 76$). The prerequisite for assessing the invariance of the model was that the unconstrained model fits each sub-sample separately. The results indicated an acceptable fit for the samples of both locations of Malaysia ($\chi^2(82) = 144.409, p < 0.001, \chi^2/df = 1.761, \text{GFI} = 0.849, \text{CFI} = 0.918, \text{IFI} = 0.920, \text{TLI} = 0.895, \text{NFI} = 0.833, \text{RMSEA} = 0.086, \text{SRMR} = 0.060$) and China ($\chi^2(82) = 154.654, p < 0.001, \chi^2/df = 1.886, \text{GFI} = 0.785, \text{CFI} = 0.917, \text{IFI} = 0.919, \text{TLI} = 0.894, \text{NFI} = 0.843, \text{RMSEA} = 0.109, \text{SRMR} = 0.065$). Subsequently, the unconstrained and constrained models were compared. The results showed that both unconstrained ($\chi^2(76) = 299.165, p < 0.001, \chi^2/df = 1.824, \text{GFI} = 0.821, \text{CFI} = 0.918, \text{IFI} = 0.920, \text{TLI} = 0.894, \text{NFI} = 0.838, \text{RMSEA} = 0.068, \text{SRMR} = 0.060$) and constrained ($\chi^2(62) = 309.281, p < 0.001, \chi^2/df = 1.738, \text{GFI} = 0.817, \text{CFI} = 0.921, \text{IFI} = 0.921, \text{TLI} = 0.906, \text{NFI} = 0.833, \text{RMSEA} = 0.064, \text{SRMR} = 0.064$) models fitted the data well and therefore there was no significant difference in goodness of fit between them ($\chi^2(14) = 10.116, p = 0.754$). These results indicated that the model structure was invariant across different locations. Table IV reports factor loadings of the measurement model using the complete CFA data set consisting of participants from both locations, the CFA data set of the respondents in Malaysia and the CFA data set of the respondents in China.

The findings from the factor analysis and confirmatory factor analysis reveal that there was a positive significant relationship between the 15 soft skills developed at both the Malaysian and Chinese universities and a student’s preparedness for employment. The analysis also reveals that the majority of respondents from both the Malaysian and Chinese universities felt that whilst at their respective university they developed their self-management, communicational, interpersonal, team-working skills, the ability to work under pressure, imagination/creativity, critical thinking, willingness to learn, attention to detail, taking responsibility, planning and organising skills, insight, maturity, professionalism and emotional intelligence. These findings support $H1$ and $H2$. However, the levels of agreement from students at the Chinese university were consistently lower than that of their Malaysian counterparts, in part explained by the underpinning teaching and learning approach by Chinese educational establishments and therefore supports $H3$. Despite the introduction of the “(Reform of Undergraduate teaching quality and teaching reform project in Colleges and Universities)” (MOE, 2011) by the Ministry of Education of China in 2011 which was meant to introduce more creativity and innovation into the

<table>
<thead>
<tr>
<th>Items</th>
<th>Both countries ($n = 180$)</th>
<th>Malaysia ($n = 104$)</th>
<th>China ($n = 76$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-management</td>
<td>0.717***</td>
<td>0.727***</td>
<td>0.698***</td>
</tr>
<tr>
<td>Communication</td>
<td>0.717***</td>
<td>0.718***</td>
<td>0.723***</td>
</tr>
<tr>
<td>Team-working</td>
<td>0.741***</td>
<td>0.634***</td>
<td>0.829***</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>0.734***</td>
<td>0.648***</td>
<td>0.798***</td>
</tr>
<tr>
<td>Working under pressure</td>
<td>0.636***</td>
<td>0.611***</td>
<td>0.638***</td>
</tr>
<tr>
<td>Imagination</td>
<td>0.579***</td>
<td>0.616***</td>
<td>0.543***</td>
</tr>
<tr>
<td>Critical thinking</td>
<td>0.797***</td>
<td>0.788***</td>
<td>0.815***</td>
</tr>
<tr>
<td>Willingness to learn</td>
<td>0.727***</td>
<td>0.659***</td>
<td>0.760***</td>
</tr>
<tr>
<td>Attention to details</td>
<td>0.689***</td>
<td>0.655***</td>
<td>0.692***</td>
</tr>
<tr>
<td>Planning</td>
<td>0.756***</td>
<td>0.678***</td>
<td>0.787***</td>
</tr>
<tr>
<td>Responsibility</td>
<td>0.762***</td>
<td>0.662***</td>
<td>0.813***</td>
</tr>
<tr>
<td>Insight</td>
<td>0.720***</td>
<td>0.693***</td>
<td>0.723***</td>
</tr>
<tr>
<td>Professionalism</td>
<td>0.712***</td>
<td>0.608***</td>
<td>0.787***</td>
</tr>
<tr>
<td>Maturity</td>
<td>0.632***</td>
<td>0.596***</td>
<td>0.724***</td>
</tr>
<tr>
<td>Emotional intelligence</td>
<td>0.645***</td>
<td>0.559***</td>
<td>0.754***</td>
</tr>
</tbody>
</table>

Table IV. The results of the measurement model assessment

Note: ***$p < 0.001$
Conclusions

In an ever-changing employment market, it is incumbent of educational establishments to ensure graduates are prepared with the necessary skills to secure employment. With regards this research, the findings indicate that students from both the Chinese and Malaysian universities were of the opinion that their institutions developed their soft skills, although with regards the capability "(imagination)", students were less positive. The students in the Malaysian university in particular felt their institution prepared them for the future employment market and developed the skills they required for a job, which eludes to the main theme from this research. In all instances, students from the Chinese university were less agreeable to statements when compared to their Malaysian counterparts, which gives some sight into how students perceive the approach of Chinese educational establishments towards teaching and learning. Given the Chinese Ministry of Education introduced a number of initiatives to encourage more innovative and creative thinking in universities (MOE, 2011) it would appear the traditional surface approach to learning is still somewhat engrained in teaching practices leaving a soft skills gap in the current provision of employability skills.

What this research informs existing literature is the importance of the teaching and learning culture on the ability of universities to impart the necessary employability skills to students. With regards the practical implications it is clear that if students have the appropriate skills to thrive in employment this benefits all stakeholders, future employees, employers and the educational providers. However, it would appear that Chinese students are not developing their soft employability skills in contrast to those Malaysian students, which means that the Chinese university needs to be more applied in its approach to address the graduate skills gap and enhance the employment prospects of its students. The research shows that there is potential for universities in both countries to further develop their curriculum and potentially change their teaching and learning approach to improve the degree of students' soft skills developments for the job market in the fourth industrial revolution.

With regards the limitations of this research, it is acknowledged that the sampling approach carries the limitation that only those students who attended classes during the two weeks were surveyed. This was not considered a major limitation as 361 respondents constituted a representative sample of the universities respective populations and circa 45 per cent of the total number of students on the business programmes surveyed. The limitation of sample size is further being addressed in a larger comparative study of multiple universities in Malaysia and China, which will evaluate the perspectives of students from a range of different disciplinary backgrounds. A further limitation of the study is that the research could have benefitted from including a qualitative dimension. Such limitations are being addressed in a larger study, which, intends to build on the themes to emerge from this study and take research forward in the area of graduate work readiness.

With regards, further research, the authors intend to incorporate a qualitative dimension to the research to investigate why students from the Malaysian university felt that the inventory of 15 soft skills were being developed through the curriculum and what aspects of the university experience best prepared them for the employment market. A further area of research would be to gain more insight from graduates across universities in China and Malaysia on their soft skills development, specifically looking at emotional and spiritual intelligence, with the former soft skill only being one variable analysed in the context of the
Goldsmith’s soft skills inventory. The rationale behind examining emotional and spiritual intelligence is because of its increasing importance to graduate employability (Jameson et al., 2016). It would be interesting to examine the role students perceive it to play in the university curriculum, particularly Chinese students who, in this research, consistently thought soft skills were not well developed at their institution. A final area of further research would be to investigate the perspectives of those students who did not feel their soft skills were being developed during their time at university. Although these students were, in many cases, the minority, it still represents a large enough cohort of students whose employability needs were not being met, particularly among those students from the Chinese university. Understanding the perspectives of students who felt they developed and those who did not feel their soft skills were being developed is important in order to make it a more inclusive experience for all and improve the employability rates of graduates not only in China and Malaysia but also across the globe.

References


Further reading

Corresponding author
Weili Teng can be contacted at: weili.teng02@ntu.ac.uk

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Creating a Win-Win
Designing and implementing mutually beneficial collaborations between community organizations and academic programs

Bethany Wrye
Department of Health and Human Performance,
Middle Tennessee State University, Murfreesboro, Tennessee, USA

Cynthia Chafin
Center for Health and Human Services,
Middle Tennessee State University, Murfreesboro, Tennessee, USA, and

Casie Higginbotham
Department of Health and Human Performance,
Middle Tennessee State University, Murfreesboro, Tennessee, USA

Abstract
Purpose – It is well established that partnerships between universities and community organizations can serve to enhance student learning and employability (Anderson et al., 2011; Arantes do Amaral and Matsusaki, 2017; Jones and Sherr, 2014; Voss et al., 2015). Within this context, the purpose of this paper is to explore how one such partnership has resulted in the successful implementation of three pedagogical methodologies, which individually and collectively promote student-centered learning and employability skills through an experiential learning framework.

Design/methodology/approach – Using this methodological case study approach where the pedagogies of internships, service-learning opportunities, and project-based learning are critically evaluated, the research reveals only positive benefits for students, faculty, and the community organization(s). These benefits center on improved employability skills, the development of social skills and societal contribution for students.

Findings – Participating students also noted the development of their confidence and the importance of feedback from both peers and assigned staff. Members of faculty considered the opportunity for students to put theory into practice, enhanced employability skills and the collective nature of the methodologies as the main benefits with The center echoing the sentiments of other stakeholders. The center considered the workplace preparedness, the development of soft skills and confidence and the collective nature of the methodologies as the main benefits of the partnership.

Originality/value – The insight provided by the research contributes to existing literature through examining the relationship between an academic institution and its community, providing a practical framework and guidelines for the implementation of student-centered pedagogical methods.

Keywords Collaboration, Partnership, Project-based learning

Paper type General review

Introduction
Given the identified skills gap between graduates and employers (Cappelli, 2012; Moore and Morton, 2017), education providers are tasked with thinking more creatively around how to develop the graduate skills set, to embed hard and soft employability skills into an academic curriculum and to do so within a framework of educational learning. Responses from educational providers to this challenge, which will arguably better prepare graduates for the disruptive employment market, have included a variety of measures. Either individually or collectively universities and colleges have included the use of work-based learning (WBL), internships, simulations and real-world assessments (Galloway et al., 2014; Renganathan et al., 2012; Turner and Mulholland, 2017; Vos and Brennan, 2010) in learning spaces which replicate the business environment and/or take students away from the traditional classroom environment (Daley and
The partnership and collaboration between community organizations and educational establishments can, if implemented successfully, combine internships, WBL and real-world assessments and is considered an important conduit in the development of a participating student’s employability skills. Community partnerships expose students to real-life scenarios and provides the community partner with collective critical insight into their current and future market situation (Jones and Sherr, 2014; Kassean et al., 2015; Ehiyazaryan and Barraclough, 2009). Such partnerships and collaborations, although time consuming for participants and sometimes difficult to maintain, are becoming increasingly necessary as demand for a work ready and suitably skilled graduate workforce gathers pace in the context of industry 4.0 (Schwab, 2017).

This paper discusses three distinct pedagogical experiences that have emerged from such a partnership between faculty in a university through a “Community and Public Health” undergraduate program and a community organization, referred to for blinding purposes as The Center. The first pedagogical experience is the internship, in which students have the opportunity to gain real-world work experience while still within the context of an academic environment, requiring them to discuss with others, problem-solve and reflect on their learning. The second pedagogical experience is service-learning projects, which take place within the context of a specifically designated service-learning course. The third pedagogical experience is project-based learning, embedded within a content-based course and where the learners’ experiences are reinforced through the engagement with a business problem, being able to apply specific content-related concepts to a real-world scenario. In each of the three pedagogies, student learning is guided within Kolb’s (1984) experiential learning framework. Based on a discussion of those distinct methodological experiences, this research will evaluate how an experiential learning framework has been used to incorporate student-centered learning (SCL), all founded on a strong academic-community organization partnership and resulting in benefits for all identified stakeholders. The research consolidates existing research in community engagement and its role in graduate employability (Voss et al., 2015; Jones and Sherr, 2014; Arantes do Amaral and Matsusaki, 2017; Anderson et al., 2011) and takes research forward in the area of learning and experiential pedagogies.

Literature review
Loureiro et al. (2009) recommend the approach of SCL to develop public health competencies arguing that competence should “put knowledge into action” (p. 418) and indicated that for SCL to prove successful, each student had to have “the opportunity to experience and articulate his or her learning process in conjunction with other students” (Loureiro et al., 2009, p. 419). This process of learning by doing, allows knowledge to be created through experience (Kolb, 1984), letting students be suitably prepared for certification in their field of study, which in the case of students in this research, is to be Certified Health Education Specialist(s).

The SCL approach operating within the experiential learning framework has been argued to develop a broad set of hard and soft employability skills and includes, project management, responsibility, systems thinking and confidence (Arantes do Amaral and Matsusaki, 2017), as well as cultural humility (Sabo et al., 2015), negotiation, compromise, teamwork and leadership (Loureiro et al., 2009). Sabo et al. (2015) describes how similar partnerships to the one which is the focus of this research, have inspired some students to frame their respective career plans around social justice issues and have been given the confidence to take the initiative and develop such projects themselves. It is the inter-related nature of these partnerships, containing more than one experiential antecedent, that when taken collectively can realize the full potential of experiential learning. Engagement with these types of partnerships can increase the employability of graduates not only through developing highly sought after skills but in the opportunities afforded to them through networking and collaborating.
with business. The emphasis is on a blend of theory and practice, preparing students for professional certification and providing valuable and specific experiences for them to include on their respective resumes.

**Internships**

To realize the full potential of a relationship between a university and a community partner, the affiliation has to go beyond simply using the community partner as a “live” case study, there has to be a degree of student exposure to the running of the business *in situ*. This level of business engagement is best realised through internships rather than other forms of business “visitations” such as site visits or work shadowing (Burnett *et al.*, 2011) which are more limited in terms of their capacity to allow the student to “experience” the workplace environment. The increased use of internships in academic programs are a response to the identified employability skills gap among graduates and the need to provide students with an appropriate level of business exposure (Jackling and Natoli, 2015; Zhu *et al.*, 2015; Anon, 2009). The internship is an opportunity to develop those softer employability skills which involve social interaction, emotional intelligence and self-reflection (Clarke, 2016; Jameson *et al.*, 2016; Rao, 2014, 2013; Sail and Alavi, 2010) and can be defined as “structured and career-relevant work experiences obtained by interns prior to graduation from an academic program” (Taylor, 1988, p. 393). However, not all internships have the capacity to engender such employability skills, the impact depends on the levels of stakeholder engagement and the type of internship, which in the case of this research, is a work experience internship. This internship is usually associated to the student having a level of responsibility and with a degree of institutional planning (Anthony, 1981), and although not a full graduate apprenticeship *per se*, is considered a robust and appropriate internship to embed in the curriculum. The impact of internships is also founded on the level of engagement from stakeholders. The first stakeholder, the student has to be suitably motivated and able to critically reflect on their experiences, the second stakeholder, the academic as well as the industrial supervisors have to be willing to provide appropriate support and feedback. The third stakeholder, the employer, has to provide a meaningful role for the intern and not simply give unsupervised and menial work (Anthony, 1981; D’Abate *et al.*, 2009; Dalby, 2009; Dunlap, 2005; Holyoak, 2013; Jackling and Natoli, 2015; Lang and McNaught, 2013).

The work of Anthony (1981) amongst others, have discussed the structure of an internship and the necessary components to make it successful. Through the interns’ journey, there has to be structure, measurement and monitoring, with stakeholders benefiting from the experience. For the intern, the outcomes of the internship should be increased employability prospects, a better understanding of work, and a sense of professionalism, responsibility and self-worth (Anthony, 1981; Maertz *et al.*, 2014). For the university, there is the access to contemporary business practices, possible revenue through consultancy and as a marketing initiative to attract prospective students (Anthony, 1981; Jones and Iredale, 2010; Maertz *et al.*, 2014; Wilson, 2012). For the employer, they are able to “talent spot” and assess the abilities of prospective employees, gain new perspectives from individuals who have yet to be “institutionalised” and possibly save on recruitment costs if the intern turns out to be a suitable employee (Anthony, 1981; Maertz *et al.*, 2014).

The literature argues that there are five inter-related components required to ensure a successful internship. The internship has to have a clear plan, with a transparent selection process of the intern, clear allocation of the employer and internship tasks and integration of the learning and academic experience throughout the internship (D’Abate *et al.*, 2009; Dalby, 2009; Dunlap, 2005; Holyoak, 2013; Jackling and Natoli, 2015; Lang and McNaught, 2013). Following this structure would allow the educational establishment to navigate the limitations associated to internships, which are usually related directly to the stakeholders. These identified limitations are the unrealistic and unfulfilling experience for interns.
(Maertz et al., 2014; Anthony, 1981); the lack of suitable supervision by academics and industrial supervisors (Maertz et al., 2014; Anthony, 1981); and the possible disruption to the organization caused by attempting to “fit” a student into the business (Maertz et al., 2014; Anthony, 1981).

Service learning

Internships have been proven to assist graduate employability (Anthony, 1981; Holyoak, 2013; Liu and Wang, 2014; Maertz et al., 2014; Renganathan et al., 2012) but they are arguably more successful if run in tandem with other initiatives. In order to develop the necessary graduate employability skills, an internship program needs to be complemented by other business facing learning initiatives such as service learning and project-based learning. Using three pedagogical methodologies will arguably optimize and reinforce learning around the four stages of the learning cycle, namely, the provision of concrete experience, facilitation of reflective observation, allowing abstract conceptualisation, and encouraging active experimentation (Kolb, 1984).

Service learning is a practice that uses engagement with the community to help students gain a deeper understanding of what they learn in the classroom, promoting personal and social development (Stacey et al., 1997). The learning centers on a real-world scenario and arguably has a positive influence on all stakeholders (Billig, 2009; Conway et al., 2009), particularly the students in terms of their academic and cognitive development, civic and ethical development, personal and social development (Eyler and Giles, 1999; Eyler et al., 1997; Prentice and Robinson, 2010; Wittmer, 2004). However, the same limitations that have been leveled at internships can be made of service learning, namely, the possibility of an unfulfilling student experience, the lack of an appropriate assessment and the shortage of support and feedback provided by the academic member of staff and community partner (Gray et al., 1999; Kraft, 1996). To avoid these identified limitations, the educational provider and the community partner have to work together to ensure SCL, based on transparency and to implement a structured approach, which has the integral elements of measurement and monitoring.

Project-based learning

Smith and Gibson (2016) make the case that project-based learning can be an effective methodology in both engaging the learning preferences of Millennial students and providing them with skills most often reported missing in new graduates by employers, such as critical thinking and effective communication skills (Chamorro-Premuzic et al., 2010). Collectively known as real-world business engagement, such initiatives allow participating students to “learn by doing,” to make mistakes and learn from these mistakes within an educational environment. According to Jones and Iredale (2010, p. 12) there needs to be “exchange, experiment, positive mistake-making, calculated risk-taking, creative problem-solving and interaction with the outside world.” It is the ability to take risk(s) and consider business problems in a more creative manner which are developed through real-world business scenarios (Ehiyazaryan and Barraclough, 2009; Kasseen et al., 2015; Wood et al., 2009). This exposure to risk and real-world problems develop the hard skills (project management, communication, creative thinking, problem solving and leadership) of students (Draycott and Rae, 2011; Fiala et al., 2014; Jones and Iredale, 2010; Turner and Mulholland, 2017). There are however, limitations associated to such an approach to learning and are common themes found in the literature regarding all pedagogical methodologies related to SCL within an experiential learning framework. These limitations center on the approach, which must be appropriate, measureable and challenging (Boyer and Blazy, 2014). One has to be careful and not overemphasize the value of project-based learning, given some projects can have limited learning value, lack appropriate academic facilitation and support and/or lack student engagement (Turner et al., 2018). This is why it is necessary for educational institutions to
have a coherent strategy toward learning and not simply integrate pedagogies into the curriculum in an unplanned manner (Turner et al., 2018).

The three themes of student engagement discussed in this research, if suitably implemented and addressing the identified limitations, would individually appear to contribute to the development of the hard and soft skills required for today’s graduate in the employment market. Building on current literature in the research area of SCL and experiential learning, this research will examine stakeholder perspectives of the collective contribution of the three pedagogical methodologies integrated into a partnership between a university and community organization. The discussion of internships, service learning and project-based learning and their individual ability to develop employability skills among students is not necessarily new, given their respective integration in the pedagogy of educational curricula has been prevalent for a number of years, proving beneficial to all identified stakeholders, employers, educational providers and students (Maertz et al., 2014; Holyoak, 2013; Slides and Mrvica, 2007). However, the effectiveness of the three methodologies integration alongside each other, engaging with one dominant community partner, is a relatively new area of research contributing to subject knowledge in the areas of WBL and graduate employability.

Methodology
The research chose a case study approach to understand the impact of this partnership between an academic department and a community partner (The Center) on student employability. The methodological approach allowed for an investigation into a contemporary phenomenon within the context of a real-world scenario (Miles and Huberman, 1994; Yin, 1994, 1984) and is usually associated to small and specific sample sizes. In respect to this case study, two faculty members and 30 students engaged in a project with The Center, a community partner. Using a series of questions based on the literature to understand stakeholders perspectives of the three pedagogical methodologies, the research acknowledges the limitation usually attributed to such a methodological approach, that of generalizability. However, as generalizations from case studies are not based on statistical testing, rather reasoning, the limitation is addressed through this research being both deductive and inductive (Johansson, 2003). The responses from stakeholders were analyzed using content analysis to gain broad descriptions of respondent experiences and insight into identified phenomena (Elo and Kyngäs, 2008), interpreted for meaning and relationships (Denzin and Lincoln, 2011).

The partnership which is the focus of this research originated through a faculty member who also held a position at The Center and has been integral to the student learning experience at the university ever since. The Center collaborates with public agencies, private not-for-profit organizations, and university faculty and students to improve the health and well-being of all those living within a state in the USA [...] Since 2001, The Center has received over $7m in grants and contracts (a mixture of government and private funding) to conduct or facilitate research, communications, education and training across the spectrum of public health issues of importance to the community with projects ranging in duration from several months to more than a decade. Many of these projects provide learning opportunities for students through internships as well as semester-long service learning projects, the most recent of which is the focus of this research.

The Center co-created with university staff, all aspects of the module, including content, assessments and job descriptions to construct measurable learning objectives and was designed for an undergraduate course entitled “Methods of Communication and Marketing in Health Education.” This course is a senior level course that has both “Assessment in Community and Public Health” and “Program Planning in Community and Public Health” as prerequisite modules. In other words, students already had a basic understanding of health programming and were able to focus on the effective marketing of these programs. The students partnered with The Center to work with a local non-profit organization aimed
at empowering women who are survivors of cancer. Specifically, the organization was interested in expanding its professionally produced stage show, which serves, as a platform for cancer survivor’s to take the stage and share their stories.

The class of approximately 30 students were divided up into four groups, with each group taking responsibility for a different area of the research project. Each group contained seven to eight students, consistent with the recommendations of Loureiro et al. (2009) with class time for group work scheduled to coincide with course materials most relevant to different aspects of the project (see Appendix for the full Student Instructions document). As the class met for a 3 h block once a week, group project work sessions ranged from 30 min to 1 h and were scheduled for six classes throughout the semester, not including the group presentation. During these work sessions, the instructor was able to supervise group work to ensure students were on track and field any questions. Additionally, while in their groups, student were provided with reflection opportunities in the form of prompted group discussions and debriefings. At midterm, groups were required to submit rough drafts of work in progress for a project “check-in.” As part of the 360° feedback (Lang and McNaught, 2013), projects were evaluated collaboratively between the academic and an assigned representative from The Center. These supervisors provide routine feedback as well as mid-point and final written evaluations which are considered essential to measure those learning objectives (D’Abate et al., 2009; Holyoak, 2013).

The project “check-in” was viewed as a formative assessment, so no grade was assigned to this component of the assessment, however students actively engage as they see the benefits of the feedback. At the culmination of the project, grades are assigned based on how well groups followed provided guidelines, the quality of work based on theories and constructs discussed as part of course instruction and the individual participation level by group members (Whatley, 2012). At the conclusion of the module, students create visual presentations in the form of “booths” at an internship fair designed for students in the same major but in an earlier phase of their studies. During the internship fair, they discuss their experiences with future interns and field questions such as, “What was the most beneficial aspect of your internship?” Such a series of feedback related initiatives allow for a more holistic approach to feedback allowing students to gain access to constructive perspectives from a variety of stakeholders, including their peers, which enables a deeper understanding of their learning experience (Lang and McNaught, 2013).

Analysis and discussion
The community-led project impacted positively on all stakeholders and highlighted the importance of having inter-related pedagogies and not relying simply on either an internship or a project. The common theme to emerge from the qualitative data was the development of employability skills among participants with all stakeholders enthusiastic about the community-led project and its impact on their ability to secure employment. The fact that this partnership involved service learning was considered an important component of the student learning experience as the majority of students felt by participating, they were “making a contribution to their community.” Faculty members, the community partner and students collectively believed that the pedagogies used in this module promoted SCL and the development of employability skills.

Faculty perspectives
When faculty members were asked for their assessment of the pedagogical approach used in this module we can observe the responses centered on three main themes (see Table I): the ability to put theory into practice; developing employability skills among students and the collective nature of the pedagogies. No negative aspects were cited which is perhaps to be expected given this type of learning initiative has been run for a number of years with
barriers and limitations having already been addressed through module post-evaluation and discussions between students, faculty members and The Center. Faculty members identified previous barriers, which had been addressed, and this ensured a positive experience for current students. The first barrier was the fact that group dynamics had been problematic with some students contributing more to the project than others. In an effort to address this issue, students were given group evaluation forms at regular intervals. These forms encouraged students to anonymously and honestly evaluate the participation level of each group member, including their own. To reinforce the levels of engagement faculty advised students that if there was consensus among group members that certain students were not actively participating; those students’ grades would be reduced. The second barrier was the inevitable differences in levels of student motivation, with some more motivated than others were. This issue was addressed by having open lines of communication between both interns and supervisors as well as internship supervisors and faculty members and, as we will observe later in the paper, the engagement with a community-led initiative contributed significantly to levels of motivation.

The partnership between university faculty and community partners increases the use of evidence-based practice and strengthens all three of the core tenants of academic work: teaching, research and service (Jones and Sherr, 2014). Although representatives from the faculty focused on the benefits to the student from the partnership that is not to say these were the only benefits. The university benefited greatly from the three pedagogical methodologies, observed through the student feedback on teaching, commentary from accreditation panels and the academic performances of students. It should also be noted that maintaining a limit of participating student numbers on the module, measurement and monitoring of the partnership and its antecedents are vital to its continued success, with the continued improvement of pedagogies necessary to enhance the student experience and reflect the changing dynamic of the employment market.

This particular methodological approach to enhance students employability skills is considered the most appropriate given some topics can be rather difficult to communicate effectively in a traditional classroom setting. While students may be able to answer a question in an exam with a satisfactory answer that does not always, mean that, they have a sufficient grasp of a particular issue or subject. Embedding real-world experiences into the classroom setting and even better, to reinforce the experience through an internship, enables faculty to couple tangibility with the often more abstract concepts they are teaching. The result is more thorough and effective instruction, producing students who have a better grasp of taught concepts. This assertion is supported by the literature related to the individual components of this community-led project (Ehiyazaryan and Barraclough, 2009; Eyler and Giles, 1999; Eyler et al., 1997; Jackling and Natoli, 2015; Kassean et al., 2015; Turner et al., 2018; Wood et al., 2009; Zhu et al., 2015), underlining both the individual and collective importance of the three pedagogical methodologies. Both faculty members involved in this project cited the collective nature of the pedagogies as a positive outcome,

<table>
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<tr>
<th>Theme</th>
<th>Representative quotes</th>
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<tr>
<td>Putting theory into practice</td>
<td>“Able to take the knowledge learned in the classroom and put it into practice with the center in meaningful work”</td>
</tr>
<tr>
<td>Developing employability skills</td>
<td>“To fine-tune skills which will be important to her in the workforce”</td>
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<td>“I feel that her student experiences helped mold her into someone that brings ready skills to the table”</td>
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<tr>
<td>The collective nature of the initiative</td>
<td>“She is the first intern that hired as a result of her work with as an intern and as part of a service learning project” “As an intern and as part of classroom service projects involving the center was a win-win situation”</td>
</tr>
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</table>

Table I. Faculty evaluation of the community-led project
which implies that educational institutions should consider the strategy behind implementing learning initiatives and do so in a coherent manner. The academic staff thought that taken together the approach developed employability skills, through putting theory into practice, which is an observation echoed by the other stakeholders.

Student perspectives
The feedback from the students (see Table II) shared similarities with that of the faculty members, although it should be noted that students only eluded to the collective nature of the pedagogies. The student responses focused on workforce preparedness; the importance of feedback; the development of social skills and societal contribution. There were no negative comments from participants with every student enthusiastic about their participation in the partnership and not simply because the engagement enhanced their skills set and prepared them for work, rather the fact that this partnership was service learning played a prominent role in their motivation, commitment and levels of satisfaction with the pedagogical approach.

Although all stakeholders benefited from the initiative, ultimately students are the ones who benefit the most from the partnership. According to the respondents, their employability skills as well as their social skills were developed, although it should be noted that apart from “confidence,” no reference was made to specific employability skills. The ability of project-based learning, service learning and internships to develop confidence has previously been revealed in the literature (Birdthistle et al., 2007; Jones and Colwill, 2013; Turner and Mulholland, 2017), with confidence considered an important employability skill and observed to directly impact on other hard and soft skills such as teamwork, leadership and project management (Arantes do Amaral and Matsusaki, 2017; Loureiro et al., 2009). Involvement in this partnership increased student confidence in their own abilities (Griffin et al., 2011) but is was not only as a result of direct engagement with the real-world problem, although it is acknowledged that the majority of respondents thought the assignment made them “feel valuable.” Confidence was encouraged by the fact that they were able to work with a community partner, receive and reflect on feedback. Interestingly the feedback which respondents considered the most valuable was that of their classmates, underlining the importance of the inter-related nature of the methodologies and the need to not only get engagement between staff and student but between peers.

Arguably, with three different methodologies students were able to fully engage with multiple levels of responsibility, working alongside staff across the organization, which provides an experiential learning experience for students along the health education

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<tr>
<td>Workforce preparedness</td>
<td>“The project has given me more confidence to be more open about my experience and can contribute to my future career goals”</td>
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<td>“Having this opportunity to lead, learn and create with such a deserving organisation truly prepared me for what is to come in my career in Public Health”</td>
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<tr>
<td></td>
<td>“I feel as though I can use all of this for not only my personal life but also my future career”</td>
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<tr>
<td>The importance of feedback</td>
<td>“Reading and responding to my classmates’ blogs made me realize how everyone go through some sort of health experience that has made an impact on who we are today. It was a relief to discover how very similar we are”</td>
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<tr>
<td>Development of social skills</td>
<td>“This class taught me how to interact with different people who may have different personalities than I am used to”</td>
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<td>“This is the only class since I have started college in 2016 to allow me to be involved on campus and build relationships with majority of the class”</td>
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<tr>
<td>Societal contribution</td>
<td>“These assignments made me feel valuable, like my words, opinions, and experience matters to someone out there”</td>
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<td>“I feel as if I have made a big contribution to my community”</td>
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continuum (Loureiro et al., 2009). When the student responses were analyzed it is clear that they felt their employability prospects were improved, gaining a better understanding of work and their own self-worth (Anthony, 1981; Maertz et al., 2014). It is also clear that the nature of the learning, service learning, motivated and encouraged commitment among students. This partially explains why the approach has been so successful for a number of years although it cannot be discounted that students could be demonstrating enthusiasm because of the “Hawthorne effect,” where the uniqueness of the experience affects student motivation and positive perspectives. However, this is less likely when the research considers the perspectives of all stakeholders who were all equally as enthusiastic about the partnership and its ability to improve the employability prospects of students.

The center perspectives

Opinion from The Center representatives echoed the sentiments of faculty and students (see Table III) with four main themes emerging from the responses: workplace preparedness, the development of confidence and soft skills and the importance of using multiple methodologies. The community partner cited no negative aspects, probably, as mentioned earlier, because this type of learning initiative has been run for a number of years with barriers and limitations having already been addressed through discussions between stakeholders. There is also the importance of following good practice in relation to service learning, project-based learning and internships with aspects of each pedagogy observed in this case study to follow the appropriate structure and included the necessary checks and balances to ensure an appropriate SCL.

The Center partner indicated that they personally benefitted from the collaboration through the inter-related nature of the methodologies. Because the students were not only working on a project, they were also interns, immersed in the work of the organization and more exposed to how the business worked and therefore more able to provide an informed opinion. The measureable successes included successful grant applications and the community impact. As a direct result of the student engagement, the organization received funding to extend its work beyond cancer care to dental care and was able to more effectively reach cancer survivors in identified geographical areas with programming and educational opportunities. The benefits to The Center of working with students is supported by the literature (Anthony, 1981; Maertz et al., 2014) but what is equally important is the fact that the community partner thought the partnership developed the employability skills set of participants.

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<th>Representative quotes</th>
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<tr>
<td>Workforce preparedness and employability</td>
<td>“Planning, implementing and assisting with the evaluation of two community health-focused programs as well as marketing and promotions of another program gave her marketable skills to take forward”</td>
</tr>
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<td>“She is doing a great job for us and I feel that her student experiences helped mold her into someone that brings ready skills to the table”</td>
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<tr>
<td>Soft skills</td>
<td>“Through their work with the center, students are able to learn both hard and soft skills that the workforce demands while in a nurturing and mentor-led environment”</td>
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<td>“Teamwork, adaptability, problem-solving, conflict resolution, written and verbal communication skills, and leadership are needed in a variety of settings, not just the workforce”</td>
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<tr>
<td>Confidence-building</td>
<td>“Confidence-building is something that virtually all students gain when participating in work of the center, regardless of which methodology is employed”</td>
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<tr>
<td>Using multiple methodologies</td>
<td>“We found that some of the experiential learning opportunities we have at the center are better suited for one methodology vs. another depending on the nature of the project available, topic, and scope of work needed identified by the center. Utilising multiple methodologies has made this partnership work well”</td>
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Table III. The center evaluation of the community-led project
Unlike the students who only specified one employability skill developed through the partnership but eluded to others, The Center indicated that a number of hard and soft skills including confidence, teamwork, problem-solving, communication, conflict-resolution and leadership were developed, observations which are supported by the literature (Arantes do Amaral and Matsusaki, 2017; Loureiro et al., 2009; Turner and Mulholland, 2017). The Center indicated that the partnership enabled improved employability and employability skills with the respective supervisors of the students indicating how positive they were about their interns and of their work on the project. It would be fair to conclude that the level of student engagement and the perception of this engagement from the perspectives of faculty and community partner centers around the use of multiple methodologies and the community-led nature of the partnership, underpinned by the relationship between the stakeholders and theme of contributing to society and a sense of civic responsibility (Eyler and Giles, 1999; Eyler et al., 1997; Prentice and Robinson, 2010; Wittmer, 2004).

Conclusion
The aim of this research was to discuss the ways in which an education provider has been able to leverage a strong academic-community partnership into SCL opportunities based on experiential learning that benefit all parties involved: the students, the academic faculty, and community organization and which improves the employability of graduates. While this particular partnership is a long-standing one, some insight has been provided into the mechanics of the partnership, which should prove useful to academics and practitioners wishing to establish similar potential partnerships to enhance the employment prospects of their students. Fundamental to this partnership is the sharing of a common interest, which is reflected in the positivity from all stakeholders regarding the outcomes. In the case of the university and community partners, both frequently collaborate in area Wellness Council meetings, public health conferences and community health coalitions. It was considered essential for the relationship that academics became active members in their communities in order to forge relationships with other active community members. The relationships that result from these interactions are arguably the foundation of successful academic-community partnerships (Jones and Sherr, 2014).

Through embedding three different pedagogical methodologies into a SCL framework, students were observed to develop a sense of preparedness for employment and improved employability skills, with the inter-related nature of the pedagogies and the focus on service learning observed to contribute to the motivation, engagement and enthusiasm stakeholders had for the partnership. The findings not only consolidate existing literature on the effectiveness of internship programs, service and project learning, they take research forward in terms of identifying the importance of combining complementary pedagogies and revealing the importance of engaging with service learning in order to enhance the benefits of internships and project learning. The research also underlines the importance of appropriateness with regards modular content, pedagogy and student, presenting practical recommendations for other educational establishments considering the implementation of similar methodologies. These recommendations include the necessity to embed frequent opportunities for students to provide honest evaluation of progress and peer participation; clear and open communication between academic faculty and community partner staff; and the setting of clear expectations with regards ground rules and outcomes before embarking on the program.

The research intends to expand upon this study and conduct comparative research into other institutions in the USA who are using a similar approach to learning in order to better understand the potential of the experiential learning framework within the context of combining internships, service-learning and project-based learning. A further recommendation is to compare the perspectives of students on similar programs of study and their engagement with the individual pedagogies used in this study and of students on different programs of
study and their engagement with the combined 3 pedagogical methodologies. This will allow a more complete understanding of the impact of the approach used in this research and its ability to be replicated across programs.

References


Further reading


Appendix 1. Fall 2016 service learning project

Project overview.

(project removed for blinding purposes) received a grant in 2002 to implement a prenatal smoking cessation program, S.M.A.R.T. Moms – Smart Mothers Are Resisting Tobacco. We received half a million dollars to implement this across the state and provided training for all 95 counties in the state. We had over 13,000 pregnant smokers participate and we collected data on each of them. Two faculty member from your program have been involved in the evaluation and are still involved.

To date, we primarily have targeted physicians and nurses and WIC clinic staff. We would like to expand this program to include dentists, dental hygienists, and dental technicians, as they are more and more frequently getting engaged in “other” health topics with their patients – i.e., some automatically do oral cancer screenings while doing the routine dental exams. There is a link between pre-term birth and poor dental health, and if dentists are already doing oral cancer screenings, it cannot hurt to ask about smoking status/tobacco usage and to do some counseling as well.

Individual Assignment:

- Read S.M.A.R.T. Moms training materials and the published journal article from the Journal of Allied Health (copy provided) and visit the website (www.smartmomstn.com) to become familiar with S.M.A.R.T. Moms

- Take each section of the current training materials (the “kit”) and make additions that would make it appropriate for dental professionals (i.e. suggest additional links, resources) and create a 3-5 page supplement that would be specific only to dental professionals, modeling it after the original training materials, that can be added to the current training kit.

- Write a 3-5 page proposal that outlines a “marketing plan” for promoting the revised training kit within the dental community. Do not make your responses specific to this county or city, but
to ALL areas of the state. Discuss what audience you are trying to reach, how you would do it, why you selected the methods you did, and what type of messaging would be good. Use visuals, graphs, charts, and facts and figures. You may want to include sample materials (i.e. a sample press release, flier, or page of social media messages).

- Choose 5 counties in this state (each student should choose five DIFFERENT counties) and do research on birth outcomes for that county (premature birth, low birthweight, and smoking mothers) as well as any noted health concerns specific to dental health. Write a 3-5 page summary of your findings. You may use charts, graphs, and visuals if you would like. As a supplement to those findings, research how many dental professionals are in that county (dentists, dental hygienists, and dental assistants), and make a recommendation for each county as to whether or not this program is needed in that county as well as whether or not. List where you got your information and credit all sources.

Group/Team Project:

- Share with your team your individual marketing plan. Each team should then create ONE TEAM marketing plan that incorporates the best components of each individual marketing plan. Present your team marketing plan along with the PowerPoint presentation at the time of the semester designated by your instructor.

- Develop a PowerPoint presentation of 10-15 slides that explain the program to dental providers, the connection between oral health and a healthy pregnancy, the highlights of the program, why they should want to implement the program, and how they can implement. Make it visually appealing! Present your PowerPoint presentation along with your team marketing plan at the time of the semester designated by your instructor.

Note: ALL team members should participate in the class presentations.
Appendix 2.

Thank you for supporting the mission of the (removed for blinding purposes)! Our mission is to establish a network where women affected by cancer can find their voice, improve their quality of life, and embrace their 2nd Acts.

YOU are the first group of students to take on a class project with the (removed for blinding purposes). CONGRATULATIONS! You will gain exposure to a local non-profit with international reach, learn new skills, AND you will be helping cancer survivors throughout the United States as part of this assignment helping us market (removed for blinding purposes) professionally produced stage shows for cancer survivors.

WELCOME ABOARD!

Key components of your class assignment:

- **Complete a template for your assigned state(s) which provides detailed contact information for key individuals in local communities of your assigned state(s).**
  - ✓ Think of ALL organizations who might work with cancer survivors – not just hospitals! We want to reach out to ANY organization in a state that works with cancer patients and survivors.
  - ✓ We represent ALL cancers, all stages, and all ages, so we are not limited to organizations that only work with breast cancer, for example.
  - ✓ A blank template outlining information to be collected will be provided.
  - ✓ We also have a template for some states of organizations already identified; if your state is one where we have identified some organizations already, please insert these into your blank template and collect information that may be missing (i.e., contact persons, social media accounts) and then continuing looking for more organizations!
  - ✓ It is important that we have NAMES of individuals, not just organizations and facilities! The names of the types of people you should be researching and asking for are included on the template.
  - ✓ A website is also listed on the template which will help get you started in seeking cancer centers. Remember, though, don’t stop just at cancer centers, we want ANY community organization working with cancer patients and survivors to participate!

- **Develop a sample media release for your state(s) announcing the (removed for blinding purposes) performance in your state.** Be creative in your approach with the goal of not just informing readers about the performance, but educating them on the WSA’s mission AND getting individuals and groups excited about the performances and enticing them to participate as a sponsor and/or attendee.
Develop a sample script that staff and volunteers can use when approaching contacts made. Similar to the sample media release, develop something that engages people and that makes them want to get involved. The script should be written for both telephone AND e-mail communication exchanges.

Develop a PowerPoint that can be used to “sell” the production to potential sponsors.

Develop 60 days of social media messaging that could be used in the days leading up to a performance to engage subscribers and generate excitement for the event.

Package ALL pieces of your assignment together and provide a hard copy as well as electronic copy on the due date. Be prepared to give a 20-minute presentation at the end of the assignment using the PowerPoint you developed as part of the assignment as well as an overview of your work on different pieces of the assignment.

Please talk to your professor if you have any questions or concerns! We appreciate your involvement and cannot wait to see your finished work and presentations!!

**Corresponding author**
Bethany Wrye can be contacted at: bethany.wrye@mtsu.edu
Employers’ ratings of importance of skills and competencies college graduates need to get hired

Evidence from the New England region of USA

Anthony M. Baird
Charlton College of Business,
University of Massachusetts, Dartmouth, Massachusetts, USA, and

Satyanarayana Parayitam
Department of Management and Marketing, Charlton College of Business,
University of Massachusetts, Dartmouth, Massachusetts, USA

Abstract

Purpose – Higher education institutions play an important role in the economic growth of any country, through skills and productivity of their graduates. Employers have some expectations about the skills the graduates possess when they graduate out of universities. The purpose of this paper is to examine the skills employers look for in graduates before they hire them.

Design/methodology/approach – Using a structured survey instrument, this paper gathered data from 50 organizations employing over 50 people. The data consisted of 21 skills the employers rate as important. These skills were categorized into four dimensions: analytical skills, career professional and readiness skills, communications skills, and personality, leadership skills and team/group work. After checking the reliability of the scale, $\chi^2$ test and rank correlation were used to analyze the importance of these skills.

Findings – The findings from a study of employers in the northeastern part of USA suggest that the top six skills and competencies rated with highest importance by employers were: interpersonal skills/works well with others; critical thinking/problem-solving skills; listening skills; oral/speech communication skills; professionalism; and personal motivation. Of all 21 skills, the highly ranked skills needed were interpersonal skills followed by critical thinking and problem solving and listening.

Research limitations/implications – The present research is based on self-report measures and, hence, the limitations of social desirability bias and common method bias are inherent. However, adequate care is taken to minimize these limitations. The research has implications for the higher educational institutions and research in the field of education.

Practical implications – In addition to the employers, this study contributes to higher educational institutions. The study suggests that employers look for interpersonal skills and problem-solving skills before making hiring decisions. Educational institutions need to focus on enhancing these skills in classrooms by emphasizing the teamwork. The implications for both academicians and practitioners are discussed in the paper.

Social implications – The findings from the study help in creating a fruitful social environment in organizations.

Originality/value – This study provides new insights about the changing pattern of skills students need to secure before seeking employment.

Keywords Skills, Education, Competencies, Employers

Paper type Research paper

Introduction

Those skills widely considered as soft skills are commonly reflected in nearly all occupations but will be in exact demand in jobs that are both high growth and well above median in salary potential. Therefore, an education system that supports the development of these widely common and diverse skills not only support the future success of the students who aspire to those positions but also foretells the future success of students across the academic continuum. (Anderson and Gantz, 2013, p. 2)

The authors would like to acknowledge the anonymous reviewers and the editor for their helpful comments for enriching the manuscript.
In the present-day global and competitive economy, the nature of workforce requirements is continuously undergoing phenomenal metamorphosis. To secure a sustained competitive advantage, employers need core competencies in terms of human resources, which are rare, valuable, non-imitable, non-substitutable and non-transferable (McMurray et al., 2016). Research demonstrated that core competencies and essential skills include: quantitative, analytical, technological capability, strategic and integrative thinking, creative problem solving, cross-cultural communication and collaboration, flexibility and adaptability to change, self-awareness, a global perspective, and an ethical, socially responsible outlook (Finch et al., 2016). It is essential to note that screening candidates for said skills and competencies initially takes place in the interview, albeit, the literature does not indicate effective interview performance as a necessary skill or ability of graduates to sell themselves as qualified to execute the duties of a vacant position.

Nonetheless, candidates’ ability to demonstrate the skills and competencies employers seek in college graduates is incongruent, which presents a problem for college graduates in the future. According to Inside Higher Ed, recent college graduates are not able to apply their knowledge and skills in real-world settings, especially critical thinking and communication skills (Jaschik, 2016). Currently (and in the future), competition for meaningful jobs requires the best candidates to be measured by their skills and competencies. Furthermore, communication, integration and presentation skills will be required for approximately 40 percent of all positions (Wash, 2015).

The skills students acquire lead to organizational efficiency through the production of ideas, invention of technologies and competencies that increase productivity and create demand, thus resulting in economic growth (Schleyer et al., 2016). Unfortunately, several research studies reported that the broader business community is generally dissatisfied with the job that colleges and universities are doing in teaching these skills to graduates (McMurray et al., 2016). Educators need to focus on teaching students skills that are needed and will help sustain businesses and grow the economy. Busted (2015a) reported findings of a survey conducted by Gallup and the World Innovation Summit for Education, in which 1,550 education experts from 149 countries expressed great dissatisfaction with the job primary schools, high schools and higher education institutions (HEIs) around the world are doing in educating students and preparing them for the twentieth century workforce. Moreover, it appears the strain is between a curriculum that educates well-rounded students and a curriculum that aids in developing students who are educated and career ready. Therefore, HEIs’ failure to rectifying this conundrum is a failure to meet the expectations of key stakeholders (Anderson and Gantz, 2013; Dua, 2013).

Additionally, research reveals that employers believe some basic core skills are indispensable and play a major part in hiring decisions (McMurray et al., 2016). College graduates know the value of higher education in preparing them with basic core skills, but their outcry regarding their inability to land meaningful jobs after graduation should be enough for HEIs to change. It is imperative for HEIs to deeper the relevance of higher education to employment and entrepreneurship, so that how higher education is perceived and expected to do for citizens can be materialized (Busted, 2015a, b; Dua, 2013). Furthermore, employers and HEIs should work together to make instruction meaningful and relevant to workplace needs (Busted, 2014; Dua, 2013), so there is an alignment between employers’ needs, students’ skills and competencies, and higher education’s responsibilities. Alignment is the crux of the problem that must to be rectified.

The primary research question in this study is:

*RQ1.* What skills and competencies employers rate as “important” for college graduates seeking employment?
Rationale for the present study
As economic development largely depends on HEIs producing graduates, research on matching the demand and supply of skills needed by employers is constantly evolving. The skills that were adequate some four decades back are now redundant and what is important is not only the acquisition of discipline-specific knowledge, but also acquiring employability skills. In this connection, several studies have been conducted and the literature is very vast. Most recently, one study pointed out that eight employability skills that were identified were: communication; teamwork; problem solving; initiative and enterprise; planning and organizing; self-management; learning; and technology (Roepen, 2017). Despite vast research, Holmes (2013) pointed out “relatively few studies have examined the employment experiences and trajectories of individuals in their early years of graduation” (p. 549). The present study is aimed at unraveling what are the important skills and competencies the graduates need to possess as there is a constant debate about various types of skills, namely, technical skills, non-technical skills, discipline-specific skills, etc.

Theoretical background
The theoretical background for the present study comes from the human capital theory, the social learning theory and the experiential learning theory.

According to the human capital theory, knowledge and people skills are the most important assets in any organization. The transition through colleges and universities to acquire education is a valuable and imperative investment through which people secure skills, knowledge and abilities (Hartog and Van den Brink, 2007). The degree of human capital is considered a criterion for measuring the economic growth of countries. The development of human capital requires investment and sacrifice for which the individual and the society secure over a period (McFadyen, 2006).

The human capital theory suggests that individuals and the society derive economic benefits from each other. The theory promotes education and training as a powerful factor in the improvement of individuals and society, which, in turn, improves the economy (Van der Merwe, 2010). Therefore, the accumulation of human capital is considered as a requisite factor that contributes to the wellbeing of a nation. Schick (2008) observed that experience and education served as key demographic characteristics underpinning the concepts of human capital.

The social learning theory offers another appropriate framework for understanding how individuals within a social environment recognize patterns, organize thoughts, engage and communicate with others, as well as how they become informed through the interactions, and change their realities through constructing or reconstructing knowledge (Sides and Mrvica, 2007). The fundamental role of social interaction entails the development of cognition among individuals (McCleod, 2007). When a learner is confronted with a new idea, a knowledgeable person or a mentor would help the learner construct cognitive connections between their experience and prior knowledge (Akers, 2011).

Finally, the experimental learning theory explains the relationship between action, reflection, discussion and learning. It shows that learners move from concrete experiences toward reflective observations, abstract conceptualizations, and, ultimately, active experimentation (Kolb and Kolb, 2012).

Skills and employability
Several meta-analytic and qualitative studies have identified several skills and competencies graduates are required to possess before being hired (Gormally et al., 2012). Some studies refer to skills as a component of capability, which also comprises of personal qualities, knowledge and ability to learn (Lievens and Sackett, 2012). Additionally, other studies consider such attributes to be the building blocks of competency (Jaschik, 2016; Kuther, 2013). Skills and capability have become key building blocks of workplace competency. The most
important skills that employers seek include teamwork skills, sector-specific skills, computer skills, communication skills, ability to adapt to new work environments and problem-solving skills. Most employers reported that graduates have requisite skills to work in their organizations, with the highest satisfaction being for computer skills. Core competencies including literacy, numeracy and computer skills are poised to play a compelling role in determining the prospects for employment among graduates. Nonetheless, many employers emphasize the importance of work experience which can be acquired through training before graduation (Finch et al., 2016; Trilling and Fadel, 2009; Velasco, 2012; Wash, 2015). Some researchers report that “employability of an individual depends upon assets in terms of knowledge, skills and attitudes; the way these assets are used and deployed; the presentation of assets to potential employers” (Wickramasinghe and Perera, 2010, p. 226). One prominent question that arises in this connection is: “how can new graduates enhance their competitive advantage when entering the employment market” (Finch et al., 2016, p. 1).

When there is incompatibility between supply and demand of the skills, dissatisfaction and disappointment will be the consequence (Skinner et al., 2004). Employability is very important because when compared to appropriately employed graduates, one study reported that underemployed graduates would be low in their intrinsic job, career and life satisfaction as they have truncated opportunity to demonstrate the skills they possess upon graduation (Nabi, 2003). In one study conducted in Florida, it was found that while employers valued a blend of technical and general skills and hands-on experience, they also sought new professionals who possessed fundamental understandings of business and computer programming to tailor their problem-solving skills to the specific company environment. (Hollister et al., 2017). In one study conducted in a Canadian University, 122 employers’ assessments were evaluated and the scholars reported that professional maturity, soft skills, problem solving, continuous learning and academic achievement were positively related to employer perceptions of graduate employability. Further the study also reported that employers assess the generic skills such as time management, team spirit, mental ability, subject-specific knowledge, attitudes and willingness to work, and ability to take feedback about the incumbents. (Chhinzer and Russo, 2018). Some researches contend that building employability skills into higher education curriculum should be embedded in the academic curriculum and one university in UK has implemented in University of Luton (Fallows and Steven, 2000). The primary argument here is that it is through academic curriculum all the skills needed by employers are supplied.

Some scholars focused on employer brand. Most importantly the cultural factors are considered while assessing the skills and abilities of graduate and undergraduate students. It is very important to consider the differences in the oriental and western employers because the employer brand plays a vital role in bringing cultural difference among the employees. In one study conducted in Taiwan, it was found that employer brand shows different styles of employment because of the cultural difference (Lee et al., 2018).

**Method**

**Sample**

The population for this study was organizations employing 50 or more people in the northeastern part of USA. However, every employer or business organization was not a member of their respective regional chamber of commerce. Therefore, the subjects were those active members of the chambers who chose to join and those who have elected to participate in regional job fairs in the northeast (Creswell, 2014).

Data were collected through a structured survey consisting of 21 skills, adapted and abridged from Paranto and Kelkar (2000) and Hafer and Hoth (1981). The employers were asked to respond to the importance of these skills on a five-point Likert scale, (1 representing low levels and 5 representing high levels of importance).
The employers were asked to rate the skills and competencies, on five-point Likert scale, to their importance for college graduate students seeking employment. All the skills were categorized into four dimensions: analytical skills, career professional and readiness skills, communications skills, and personality, leadership skills and team/group work. Each dimension was composed of multiple items: analytical skills contained six items (α for this measure was 0.70), career professional and readiness skills contained four items (α for this measure was 0.79), communication skills contained four items (α for this measure was 0.83) and personality, leadership skills and team/group work contained seven items (α for this measure was 0.71). The composite α for all 21 skills was 0.86. These reliability α coefficients are considered acceptable, since they are above the necessary score of 0.70 for supporting variables in the instrument (Huck, 2012).

The survey was sent to a representative sample of 1,000 employers from five regional chambers of commerce, employing 50 or more employees, all of whom were active chamber members and elected to participate in annual regional job fairs in the northeast. It was this data collection from the questionnaire that determined the employers involved in this study, a total of 52 employers responded for a return rate of 5.2 percent. Of the returned employer surveys, 50 were accurately completed for the use in this research for a final operational return rate of 5.0 percent. Analysis of demographics revealed that: 58 percent of respondents were male (n = 29) and 42 percent were female (n = 21), 40 percent of companies had 50 to 150 employees and 76 percent of the companies had been in business for over 11 years. In all, 40 percent of managers had been with their current employer for over 11 years and 42 percent of the managers held their position from 1 to 5 years.

Results
Descriptive statistics, means, standard deviations and correlations are presented in Table I.

The preliminary analysis of data reveals that the mean scores for communication skills are rated as high (with mean value of 4.31 and standard deviation of 0.61). The personality group have the skills with the lowest mean (mean of 3.76 and standard deviation of 0.44).

The correlations between these skills are within the acceptable range of less than 0.75, which means that multicollinearity is not a problem in this research (Kennedy, 2003).

The means, standard deviations and χ² values of all 21 skills are presented in Table II.

Out of 21 skills and competencies, 94 percent of the employers rated interpersonal skills and critical thinking/problem-solving skills as important (4 and 5); 88 percent of the employers rated listening skills, oral/speech communication, professionalism and personal motivation skills as important (4 and 5); 86 percent of the employers rated technical/computer skills important, and 84 percent rated written communication skills as important (4 and 5). Although all the 21 skills and competencies are important, employers rated entrepreneurial skills (42 percent > 4) second to last and global business economy skills last (16 percent > 4) at a high-level importance (4 and 5).

Of all 21 skills, the highly ranked skills needed were interpersonal skills (mean = 4.62; standard deviation = 0.593; and χ² = 32.68, p < 0.001); critical thinking and problem solving

<table>
<thead>
<tr>
<th>Skill Dimension</th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
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<tbody>
<tr>
<td>Analytical skills</td>
<td>4.04</td>
<td>0.54</td>
<td>1.0</td>
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<td></td>
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</tr>
<tr>
<td>Career skills</td>
<td>4.23</td>
<td>0.67</td>
<td>0.21</td>
<td>1.0</td>
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<tr>
<td>Communication skills</td>
<td>4.31</td>
<td>0.61</td>
<td>0.57**</td>
<td>0.51**</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Personality</td>
<td>3.76</td>
<td>0.44</td>
<td>0.32*</td>
<td>0.76**</td>
<td>0.44**</td>
<td>1.0</td>
</tr>
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</table>

Notes: *p < 0.05; **p < 0.01
(χ² = 47.76; p < 0.001); listening (ranked 3rd in importance); oral and speech communication (ranked 4th in importance), professionalism (ranked 5th in importance). Skills related to “Global Business Economy” ranked last with mean score of 2.51 and standard deviation of 1.18 (χ² = 15.8, p < 0.001). The entrepreneurial skill was not significant (χ² = 3.80, p > 0.10).

Table III presents the importance levels of skills and competencies according to dimension level.

The results reveal that: 78 percent of employers rated communication skills 1st at a high level of importance (4 and 5), 74 percent of employers rated career preparation and professional readiness skills 2nd at a high level of importance, 58 percent of employers rated analytical skills 3rd at a high level of importance and 18 percent of employers rated personality, leadership and teamwork skills last at a high level of importance. Analysis revealed that the employers indicated that communication skills and career preparation and professional readiness skills are highly important, and analytical skills and personality, leadership and teamwork skills are rated 3rd and 4th, respectively.

Comparison of skills in 2018 to that of in 1981 is presented in Table IV.
In 1981, the top 5 skills were: oral communication, motivation, initiative, assertiveness, and loyalty. The oral communication was on 5th place in 2018 and most importantly the first four important skills were totally different, namely, interpersonal skills, listening skills, critical thinking and problem-solving skills, ethics and social responsibility.

**Discussion**

The present study is aimed at examining the skills employers seek in college graduates. Given the current problem of employers’ dissatisfaction with the preparation and qualification with which new entrants and college graduates transition into the twentieth century workforce, the results of this research study provided HEIs with a better consideration for employers’ perceptions of the importance of skills and competencies they needed from students graduating from colleges and universities, HEIs today (McAleer, 2013). Moreover, HEIs in the northeastern part of USA are better updated about the employment skills and qualifications college graduates need to get hired (Busteed, 2014). The preparedness and skills levels of the workforce of the northeast are critical factors in the USA’s ability to remain competitive in the twenty-first century global economy. Throughout the USA, conversations are taking place in the business community about educating tomorrow’s workforce. Therefore, the findings from this study provided some evidence to HEIs’ officials who may need to respond to the outcry of the criticism about the professional and career readiness of today’s college graduates. HEIs can benefit from the insights provided and this much needed information on how their graduates perform as they transition into the world of work, when they get past the interview and candidate selection process, hired and employed (Shapiro, 2008; Trilling and Fadel, 2009). The results obtained from this research study help HEIs to be more effective in responding to the needs and expectations of two of their key stakeholders, the students and the employers, on the quality of talent graduating from colleges and universities. McAleer (2013) pointed out that in today’s competitive higher education market, colleges and universities must prove the value of the degrees they bestow to graduates each year. Furthermore, college administrators need to make strategic decisions to ensure those students’ educational experiences sync with employer and industry expectations (McAleer, 2013).

Following the social learning theory, the interrelationships between the skills needed by the employers and the learning that happens in the classrooms by the graduates through repeated experience is fundamental in matching the skills and competencies (Thompson and Guile, 1994). The social interaction of graduate students in the universities provides a platform for developing cognition (McCleod, 2007). Though some would argue that development comes
before learning and others contend that learning comes before development, as the learner fronts a new idea, a knowledgeable person or a mediator would help the learner construct cognitive connections between their experience and prior knowledge (Akers, 2011). Our results support the fundamental thesis of the social learning theory in the sense that graduates acquire cognition-based skills in the classrooms to meet the changing demands of employers.

The connection between the experiential learning theory and the empirical results from the study should be emphasized. The experiential learning theory considers creation of knowledge and meaning occurs through the active grounding and extension of experiences and ideas in the external world, as well as through the internal reflection of these attributes of the correlative experiences and ideas. The higher educational institutions are placing increasing emphasis on the quality of graduate employability because of the demands from external forces such as accreditation and quality assurance. As a result, most of the schools are preferring to offer experiential learning and internship as mandatory upon graduation. The career readiness, therefore, is focused not only on the standardized classroom instruction, it also depends on the external elements such as experiential learning. Roughly two decades back, the future skills required were predicted as flexibility, adaptability, innovativeness, exercising leadership and coping with uncertainty (Thompson and Guile, 1994). The findings support the theme of the experiential learning theory.

Traditional measures such as graduation rates, grade point averages and cohort default rates have become only a few of the ways to select colleges and universities. Today, students and their parents want to be assured that their investment in a college education will pay off in the form of a self-sustaining, financially secure and well-meaningful career path (McAleer, 2013). Consequently, the constant media attention about the underperformance of HEIs to produce better prepared graduates must reflect their abilities in producing graduates with the skills and competencies needed to get jobs.

The limitations of present study should not be ignored. As with any survey research, the common method bias is a problem. When data on predictor and criterion variables are obtained from a single source, there is a possibility of having measurement error which may distort the relationships (Podsakoff et al., 2003). To address this problem, researches suggested to have temporal, proximal, psychological and methodological separation of measurement. In the present study, though temporal and proximal separation was not possible, we attempted to have psychological separation of constructs such that the employers would not guess the independent variables and dependent variables. If the respondents do not identify the predictor and criterion variables, common method bias is not a problem. Statistically, we also performed Harman’s single-factor test by loading all the indicators into one factor and examined unrotated factor solution to identify the number of factors (Andersson and Bateman, 1997; Aulakh and Gencturk, 2000).

When respondents have a tendency of presenting themselves in favorable light, called social desirability bias, the relationships between independent variables and dependent variables may become spurious (Crowne and Marlowe, 1964). To minimize the social desirability bias, we maintained anonymity of the respondents so that they would not be influenced by the survey results.

One limitation of the study is the sample size of 50. It is not uncommon to find studies involving a sample size of less than 50. For example, Wickramasinghe and Perera (2010) have studied 26 employers to find the skills gap of graduates. However, it is advisable to have bigger samples, and future researches need to focus on collecting data from a variety of employers from different states, instead of only one region of the country. The study, because of its sample size, may limit its generalizability. However, considering that the sample is a representative one, we expect that the results are generalizable across all the states of USA.
The findings from this study provided updates to current curriculum and course offerings pertaining to students' career management skills. Moreover, it may provoke questions and stimulate conversation among employers, students, higher education administrators and policymakers in discussing ways to better incorporate employers and workforce needs with students' professional preparation and career readiness before graduation. Furthermore, when employers and academicians work together to make instruction meaningful and relevant to workplace needs (Busteed, 2014; Dua, 2013), there will be alignment between employers' needs, students' career skills management and HEIs responsibilities.

When we compare the skills needed roughly three and a half decades back (in 1981) with that of 2018, very interesting results can be observed. First, oral communication was ranked number one in 1981, whereas it was relegated to 5th position in 2018. One of the reasons could be that employers feel that the higher educational institutions are now focusing on oral communication in classrooms as several team projects involve presentation by students, which was somewhat lacking around 1980s. Since oral communication is no longer a problem, the employers feel that interpersonal skills is now ranked 1. In the present-day competitive world, organizations are moving away from traditional mechanistic structures to organic structures where work is primarily done in teams, interpersonal skills are very important. Motivation was ranked 2nd in 1980s, whereas it was relegated to 7th position at present. Around 1980s, employers felt that employees lack motivation and hence considered that motivation was an important skill desired by employers. As of today, to remain in the competitive world, employees are self-motivated and organizations are characterized by employees having higher levels of achievement motives. No wonder, motivation is not of high priority to the present employers. Employees are motivated to remain competitive and stay in organizations. Third, in the present dynamic and challenging environment, employers desire problem-solving skills by employees. Finally, ethics and social responsibility are considered very important these days when compared to 1980s as we notice corporate fraud on a regular basis because of unethical practices. One of the mostly cited examples is Enron corporation that was collapsed because of cooking the books of accounts. To sum, there is a great deal of change in the skills required now when compared to 1980s.

Conclusions
Among four categories of skills, the most important skills needed are communication skills. Career preparedness is 2nd in importance because the graduating seniors are concerned with taking careers, in which they are interested and fit. One of the most important things in the organization is job-person-fit. Unless students are prepared for their careers, it is likely that they end up in careers either they are not interested in or not willing to stay. This results in job dissatisfaction. Employers rate the interpersonal skills as important because in the present-day diversified organizations structured around teams. Organizations are consisting of employees from all over the world and it is essential to exhibit interpersonal skills so that they recognize the cultural differences among employees from different countries. Third, critical thinking and problem-solving skills are rated as important by employers because of dynamic environment, which is challenging and constantly changing. Graduating students need to acquire the critical problem-solving skills as they may have to come out with out-of-the-box thinking. Personal motivation and knowledge of computers are also considered important to move up the hierarchy in organizations. Finally, written communication is necessary for the graduates to get employed and most of the universities' curriculum include written communication.
Recommendations for higher education institutions

Practice and policy leaders of HEIs need to determine via their vision statements, mission statements and strategic plans how they are reimagining their institutions and graduates’ preparation, professional and career readiness. Specifically, they need to state to their constituents, with confidence, that their graduates will be prepared with the important skills and competencies for the twenty-first century workforce. HEI leaders should support freshmen and senior seminar capstone courses philosophically, financially, from an infrastructural standpoint, and as a matter of practice and policy, to develop and test interdisciplinary skills cited in this study to demonstrate the institution’s full support toward the student’s success.

HEI leaders should consider a move to integrate a professional and career preparation curriculum across all disciplines, by institutionalizing seminar courses for freshmen and juniors, so that in these seminars students will learn what employers look for in their respective disciplines and major course of study. HEI leaders should require students to conduct a career assessment to determine their skills and competencies levels in their respective subject areas and to learn how their values, interests and personality match up with potential career disciplines. Engaging students at an early juncture in their academic experience can assist them to begin developing job qualifications criteria (i.e. industry knowledge, career and self-assessments, cover letters, résumés, mock interviews, job search techniques, etc.).

HEI leaders can play a role in helping students develop their written communication, listening skills, interpersonal skills and presentation skills by embedding them into course learning objectives and assessing them more directly. HEIs should hire and train faculty, sharing their institution’s vision, to connect the content of their courses to projects and outcomes that demonstrate students are developing needed skills, i.e. efforts can be measured and supported through poster board competitions and thesis presentations. Students working together in teams can apply problem-solving and critical-thinking techniques to applied research projects where they can explore solutions to a challenge that organizations have been tackling.

Recommendations for employers

Employers are equally responsible for the rich development of talent coming out of HEIs. The skills and competencies employers in business and industry need and want from college graduates seeking employment can only come, realistically, from a shared and mutual partnership among students, HEIs and employers. As industry and university partners, recruiters and alumni must be invited to serve on boards, topic specific panel discussions and classroom visits to relate industry experiences to classroom instruction.

Employers should engage in résumé clinics or résumé critique to help guide students in their creation of the documents needed to satisfy job qualifications criteria. This would be another way for students to network with employers and build interpersonal relationships, hence interpersonal skills, to learn from someone who has more experience than the students.

Employers and alumni in the industry of a student’s major should help to conduct mock-interview workshops, so students can practice interviewing skills and gather feedback on their performance from an employer who is an alumnus.

Future research

The present research provides a platform for continuing to study the skills and competencies required by employers. Why the composition of requisite skills changed over decades and what the HEIs need to do to counter the changing needs of employers are the questions the future researchers need to focus. A report, commissioned by the Secretary of
Education, pointed out that the value of higher education has never been more salient than now (US Department of Education, 2006; Hagan, 2013). The report contended that in an era when intellectual capital is increasingly prized, both for individuals and for the nation, post-secondary education has never been more important. In total, 90 percent of the fastest-growing jobs in the new knowledge-driven economy will require some post-secondary education. Already, the median earnings of a US worker with only a high school diploma is 37 percent less than those of a worker with a bachelor’s degree. Colleges and universities must continue to be the major route for new generations of Americans to achieve social mobility. And for the country, future economic growth will depend on the ability to sustain excellence, innovation and leadership in higher education. But even the economic benefits of a college degree could diminish, if students do not acquire the appropriate skills (US Department of Education, 2006; Hagan, 2013).

Future studies focus on bridging the gap between what employers consider the skills as “important” and what skills are “possessed” by graduates coming out of educational institutions. The fundamental problem is dichotomy between what is needed and what is possessed. Most of the time, graduating seniors are concerned with what they are interested in, rather than what is “required.” The gap between “what is” and “what ought to be” is a major concern for both HEIs and employers. A more fine grained approach is needed to find the actual gap and bridge it.

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Further reading


Corresponding author

Satyanarayana Parayitam can be contacted at: sparayitam@umassd.edu

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Abstract

Purpose – The knowledge society determines a work scenario in which it is essential to manage time efficiently; a non-innate skill that should be learned at the university. The paper aims to discuss this issue.

Design/methodology/approach – This research analyzes the attitude, habits and time management of the Economics and Business students of the UPV/EHU, in order to propose/design/specific activities for its achievement. Through a self-administered questionnaire, the sample data are obtained, which are analyzed at a descriptive and multivariate level.

Findings – The decisive factor is not the amount of time available but the management that is made of it. In general, students pay attention to short-term planning and lack habits and attitudes in the long term.

Practical implications – Unaware of the advantages of a correct use of time, students do not develop skills such as self-organization, prioritization of objectives and activities, etc., which is why the intervention of the educational system is necessary in order to develop this skill.

Originality/value – This study focuses on the importance of developing skills, beyond the strictly technical, essential in professional performance regardless of the function assigned in the organizational chart/organization. It is about assessing time management as an integral part of higher education, competition expressed on paper, but not developed in practice. The originality and novelty of this research consists of defining new dimensions of time management and proposing some specific actions to be implemented to get a better time management.

Keywords Higher education, Learning, Time management, Planning, Employability skills, Business abilities

Paper type Research paper

1. Introduction

The conception of time, its perception and management, depends on the culture we belong to as masterfully expressed Edward Hall (1959) in his seminal work *The Silent Language*, “Time talks. It speaks more plainly than words. The message it conveys comes through loud and clear. Because it is manipulated less consciously, it is subject to less distortion than the spoken language. It can shout the truth where words lie” (p. 1). Therefore, while in occident it is conceived linearly, with a beginning and ending, in other cultures, the time is considered cyclic, and for that, without an ending. “People of the Western world, particularly Americans, tend to think of time as something fixed in nature, something around us and from which we cannot escape; an ever-present part of the environment, just like the air we breathe” (Hall, 1959, p. 6).

As the conception of time determines our behavior, our life (Hall, 1959; Pant, 2016), several studies on perception and management have been carried out. In the business field, from the classic studies of McCoy (1959), Drucker (1967) or Lakein (1973) to the most recent of Hassan (2003), Kannan and Tan (2005) and Cockerell (2016), there has been great interest in analyzing the planning and organization of time, in order to determine its link with performance or income. The relationship of time management with non-strictly economic variables such as anxiety, physical and psychological well-being has also been analyzed (Macan, 1994; Ho, 2003; Misra and McKean, 2000; Pérez-González et al., 2003; Strazdins et al., 2011; Boixadós et al., 2012).
In the field of education it is essential to know how the students use their time, especially since the ECTS (2015) enhances autonomy and critical skills of the student, and considers that the workload includes different types of learning activities: readings, seminars, projects, individual and group practices (p. 10).

This diversity of tasks requires the student to adequately manage their academic time and, by extension, their overall time, facing the challenge of organizing it appropriately in order to correctly fulfill all the activities of their daily life and finally validate the acquisition of competencies (Lay and Schouwenburg, 1993; Marchena et al., 2009; Romero and Barberà, 2011; Hellsten, 2012; Barberà et al., 2015).

The attainment of the final goal undoubtedly involves prioritizing the different tasks, short-term and long-term planning and specifying “skills such as focusing on urgent and important tasks, rather than those that are not important or do not move you towards the goals, elaborate list of decisions, avoid procrastination or persevere when things are not working” (Tortajada et al., 2015, p. 7). In short, all the activities are determined by the student's ability to achieve the objectives set without anxiety, stress or the feeling of inability to take on all the tasks, being often the student unaware of the “correct” management of time.

In the current knowledge society, information and communication technologies (ICTs) pose great challenges and offer immense opportunities. They not only transform the previous modalities of learning and socialization, but also the relationship between knowledge and learning processes (Shulman, 1987; Duderstadt, 1994). It is therefore essential to redefine the concept of knowledge, which “is in continuous and progressive expansion and renewal” (Tejada Fernández, 2000, p. 4), the forms of transmission of it and its ontology.

ICTs enable self-training and cooperative learning, so the university and its teachers have ceased to be mere transmitters of technical knowledge to become suppliers of methods of analysis and reasoning, in short, of capabilities, not only aimed to the elite, but to the society as a whole with which it is “more reflexively connected” (Delanty, 2001).

The growth of knowledge from collective exchange (Levy, 2000), the largest and fastest distribution of information (Lara, 2005), requires controlling this environment in which these processes are developed, where it is very easy to get distracted; in short, effectively manage the limited resource that is time. The challenge is to learn to live surrounded by apparent multiple possibilities (Bauman, 1991) in a globalized world dominated by uncertainty (Barnett, 1999).

If one of the objectives of the university is to prepare students for their labor insertion, time management becomes an essential competence for the link of formation with the professional world. Education systems should “guide individual careers of knowledge spaces and contribute to the recognition of individuals’ capacity, including non-academic knowledge” (Levy, 2000, p. 24).

The aim of the research we have developed, whose main results appear in this paper, is grasping the attitude and time management of the students of the Faculty of Economics and Business of the University of the Basque Country (UPV/EHU). The objective is to raise new demands for educational programs that allow the development of the skills and competences necessary for professional performance and continuous learning.

The main results of the research show that the university students are not conscious of the need to manage time efficiently, being the majority of them focused only on the short-time planning (daily, weekly), and also that the important issue is not the amount of available time but the use of it.

In the communications-driven society, the scenario defined by the ICTs carries the new challenge of dealing with many disturbing elements, reason why the university of the twenty-first century must provide the intellectual and programmatic framework for
continual experimentation (Attali, 1992), taking into account that the results of the students very much depend on their capacity to manage time efficiently. Therefore, this paper proposes that the university teaches the students how to organize and manage their time, creating new persons capable of developing their tasks without anxiety, stress, at a personal and professional level.

This paper begins with a general theoretical framework about time, its perception and management. Then, it gives the main points of the different models developed for time management and it analyzes the role of the university in the knowledge society. Afterwards, it presents the methodology and principal results of the empirical research developed to know how the Economics and Business students of the UPV/EHU perceive and use their time. It finishes with some proposals to teach the students the required skills.

2. Time management and higher education

The management of time in organizations has been almost an obsession since the times of Frederick Taylor, being able to find in the recent literature, fundamentally, two different ways of understanding time: as an objective phenomenon, which exists independently of human action; or as a subjective phenomenon, built socially from human action (Orlikowski and Yates, 2002). This objective/subjective dichotomy is also reflected in the distinction between chronos and kairos, chronos being “the chronological, serial time of succession […] time measured by the chronometer not by purpose” and kairos “the human and living tie of intentions and goals […] the time not of measurement but of human activity, of opportunity” (Jaques, 1982, pp. 14-15).

A third proposal has come from the Massachusetts Institute of Technology which considers that “time is experienced in organizational life through a process of temporal structuring that characterizes people’s everyday engagement in the world” (Orlikowski and Yates, 2002, p. 684) and explicitly integrates “the notion of social practices with that of enacted structures from the theory of structuration (Giddens, 1984). This integration suggests that time is instantiated in organizational life through a process of temporal structuring, where people (re)produce (and occasionally change) temporal structures to orient their ongoing activities” (Orlikowski and Yates, 2002, p. 685).

The review of the literature allows us to detect that the definitions of time management are not frequent, although many different interpretations of the concept have been generated, being able to say that in each study the researcher assumes her/his own definition of time management. Britton and Tesser (1991) propose a time-use model that includes three factors: short-term planning, time management attitude, and long-term planning; for McKenzie (1997) it is about controlling the highest level of anxiety and stress; Hashemizadeh (2006) focuses on the optimal use of time in order to live a better and easier life that includes personal skills, goal setting, organization of activities, etc., and Covey et al. (1994) consider that what is relevant is to learn to focus on “what is most important” instead of following the list of pending activities.

We can conclude that there is no general theoretical model of time management (Claessens et al., 2007; Hellsten, 2012) being qualitative and quantitative empirical studies frequent (Bond and Feather, 1988; Britton and Glynn, 1989; Macan et al., 1990, 2010; García-Ros et al., 2008; García-Ros and Pérez-González, 2012; Britton and Tesser, 1991; Gallander et al., 2011; Bartholomew, 2013; Burrus et al., 2017). In general, as Hellsten (2012) summarizes, the data demonstrate that a correct management of time leads to better results, being more efficient the individuals who set goals and objectives, as well as priorities; or individuals who have received training in time management, and are generally more prone to planning. On the contrary, the lack of control of time produces lower performance, and a negative impact on the psychological resources of individuals (anxiety, stress, etc.) (DTI, 2001).
The strong competitiveness business organizations face in an environment of continuous change involves the search for cost reduction and increased productivity, all of which require the employee greater requirements in terms of tasks and hours of work. In order to face the challenge “without dying in the attempt,” not only specific technical knowledge of each discipline is required, but also a set of skills, among which the efficient use of time stands out (MCI, 1997; Green and Skinner, 2005). Knowing how to manage time is not innate, and the absence of many previous patterns of behavior of the individual (capacity for self-organization, personal initiative, prioritization of objectives and activities, etc.) does not help good management, nor an environment where it is very easy to get distracted (overabundance of data and information). All this decisively influences the lack of “control” of time as confirmed by the results of the time budget surveys (INE, 2002/2003/2009/2010; EUSTAT, 1993/1998/2003/2008/2013).

Since the Industrial Revolution, the university is linked to the work environment and from it comes the qualification of the human capital required by the company at all times. Nowadays, ICTs have changed the way to access teaching and the role of its main characters – students, professors, managers – but the role of the university as a learning institution that facilitates the acquisition of habits and behaviors that companies need and by extension the society in which they are integrated has not changed. The needs have also changed, not only specific knowledge is required, which will be obsolete soon, but generic competences. “Economics graduates need to be equipped with concepts that have transformed their way of thinking. With these concepts in hand, graduates can then integrate these transferable skills into their careers (Karunaratne et al., 2016, p. 493).

The efficient administration of time is a tangible “know-how” that can be acquired through specific activities to promote this set of skills, which will allow to successfully assume the transition from the educational/university system to the professional world (ANECA, 2003, 2005[1]). “Conceptually, time management is a set of habits or learnable behaviors that may be acquired through increased knowledge, training, or deliberate practice” (MacCann et al., 2012, p. 619). Therefore, the acquisition of skills is the result of a temporary process that starts at school and is enriched by experience.

The literature confirms that the individuals who establish goals and objectives, as well as priorities, are tied to a correct management of time leading to better results (Hellsten, 2012; Darren, 2012). In this context, González-Brignardello and Sánchez-Elvira Paniagua (2013) established that students who feel incapable of setting priorities are those most likely to delay activities. Other study confirmed that the correlation between academic procrastination and inefficient time management is significantly strong, the latter being the strategy of action of individuals tending to delay the completion of tasks [2]. Gallander et al. (2011) and Häfner et al. (2014) also showed that people with more training in relation to time management are able to make a more equitable allocation of time to tasks and better control the procrastination.

In general, the methods used to evaluate time management are based on self-report surveys[3], with little use of other tools such as diaries or experimentation. A common feature of time management questionnaires is that they all include items related to planning behavior. The TMBS model sets a dimension on “the establishment of objectives and priorities,” the TSQ model on the “structured routine” and in the subdimensions of the TMQ “short-term planning” and “long-term planning” appear. In any case, we must not forget that in addition to behavior there are numerous factors influencing the efficient organization of time: technical errors, external realities or psychological obstacles (Claessens et al., 2004).
3. Methodology

3.1 Population subject of study and sample

The sample used in this study is made up of 304 students enrolled during the 2015–2016 academic year in the different degrees offered at the Faculty of Economics and Business of the University of the Basque Country (UPV/EHU), representing 10 percent of the total population of students (Table I).

3.2 Instruments and variables

The case study developed in this research is based on the TMQ-type attitude scale questionnaire (Britton and Tesser, 1991). In its original version or adapted to different contexts this questionnaire has been tested in many countries and has confirmed the factorial structure and its multicultural validity (Trueman and Hartley, 1995; Pérez-González et al., 2003; García-Ros and Pérez-González, 2012; De la Barrera et al., 2008; Zampetakis et al., 2010; Nadinloyi et al., 2013; Al-Khatib, 2014).

The set of TMQ items contemplates seven components of time management: choice of objectives and sub-objectives; establishment of priorities among the objectives; generation of tasks and subtasks; prioritization between tasks; creation of task lists; task planning; and completion of tasks. In this investigation, the TMQ has been conveniently adapted to be able to examine new dimensions considered more appropriate for the objectives of the research that allow us to understand better different aspects of time management:

- Short-term planning: composed of seven items related to the use of short-term planning strategies and tools that facilitate such organization.
- Long-term planning: consisting of two items that try to determine the student’s ability to set and follow their own objectives of study when there is no immediate obligation to fulfill a task; that is, determine the student’s willingness to establish long-term planning.
- The time-use style: collected in the two items related to the student’s tendency to be involved in one activity at a time or the execution of two or more tasks simultaneously.
- The study environment: defined by the two items that try to capture the conditions in the home suitable for the study.

<table>
<thead>
<tr>
<th>Degree</th>
<th>Sample (%)</th>
<th>Faculty (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business administration</td>
<td>52.86</td>
<td>51.25</td>
</tr>
<tr>
<td>Economics</td>
<td>29.29</td>
<td>17.43</td>
</tr>
<tr>
<td>Finance</td>
<td>3.37</td>
<td>8.37</td>
</tr>
<tr>
<td>Taxation</td>
<td>5.05</td>
<td>6.64</td>
</tr>
<tr>
<td>Marketing</td>
<td>5.72</td>
<td>9.79</td>
</tr>
<tr>
<td>Law+business administration</td>
<td>3.71</td>
<td>6.52</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course</th>
<th>Sample (%)</th>
<th>Faculty (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>22.37</td>
<td>22.43</td>
</tr>
<tr>
<td>Second</td>
<td>10.20</td>
<td>23.35</td>
</tr>
<tr>
<td>Third</td>
<td>42.11</td>
<td>23.47</td>
</tr>
<tr>
<td>Fourth</td>
<td>25.32</td>
<td>30.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sex</th>
<th>Sample (%)</th>
<th>Faculty (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>52.63</td>
<td>47.44</td>
</tr>
<tr>
<td>Male</td>
<td>47.37</td>
<td>52.56</td>
</tr>
</tbody>
</table>

Table I. Description of participants
The control of time and perception of control of time: defined by four items which try to capture if the student is able to manage efficiently her/his time and to know her/his feeling about it (Table II).

The questionnaire used for the research is a closed self-report one, where students indicate the frequency with which they perform the various activities proposed using a five-point Likert scale[4].

Process. In order to guarantee the representativeness of the sample, the method of data collection is based on the stratified random sampling, taking into account the degree/specialty, course and sex, and tries to avoid the possible problems related to small sample size related to same specialities (Table I).

4. Results
4.1 Descriptive analysis
Measuring the reliability of the set of items that appear in the questionnaire using the Cronbach $\alpha$ coefficient (Cronbach, 1951), a value (0.701) is obtained that is within the range of acceptability suggested by different authors (George and Mallery, 2003; Panayides, 2013) for the internal consistency of the measurement instrument. The dimension with the highest internal consistency (0.819) is short-term planning.

In general, the highest means obtained correspond to the items related to short-term planning[5] (Table III). The highest average of all of the study, with a great homogeneity of answers (CV = 0.2358), corresponds to the item try to accomplish the priorities set for the week ($m = 3.90$), followed by establish priorities among the activities to be carried out during the week ($m = 3.66$).

The average (520) of the long-term planning, consisting of two items, reflects in general a lack of long-term vision of the students. It is noteworthy that almost one in four students (21.8 percent) never establishes a list of objectives for the entire semester and a low

<table>
<thead>
<tr>
<th>Britton and Tesser</th>
<th>UPV/EHU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term planning</td>
<td>Short-term planning</td>
</tr>
<tr>
<td>Attitude</td>
<td>Control of time</td>
</tr>
<tr>
<td>Long-term planning</td>
<td>Perceived control of time</td>
</tr>
<tr>
<td></td>
<td>Long-term planning</td>
</tr>
<tr>
<td></td>
<td>Time-use style</td>
</tr>
<tr>
<td></td>
<td>Good study environment at home</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Planning</th>
<th>Average</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Coef. variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term</td>
<td>23.13</td>
<td>7</td>
<td>35</td>
<td>0.2358</td>
</tr>
<tr>
<td>Long term</td>
<td>5.20</td>
<td>2</td>
<td>10</td>
<td>0.3317</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time-use style</th>
<th>Average</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Coef. variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polychronicity</td>
<td>2.98</td>
<td>1</td>
<td>5</td>
<td>0.3305</td>
</tr>
<tr>
<td>Monochronicity</td>
<td>3.50</td>
<td>1</td>
<td>5</td>
<td>0.2936</td>
</tr>
<tr>
<td>Home environment</td>
<td>6.97</td>
<td>2</td>
<td>10</td>
<td>0.2888</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attitude</th>
<th>Average</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Coef. variation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control of time</td>
<td>5.47</td>
<td>2</td>
<td>10</td>
<td>0.3172</td>
</tr>
<tr>
<td>Perception of control of time</td>
<td>5.69</td>
<td>2</td>
<td>10</td>
<td>0.2369</td>
</tr>
</tbody>
</table>
percentage (9.2 percent) declares to do so always. On the other hand, a very small proportion (1.3 percent) of the students has the habit of reading the notes and/or manuals of the subject even if there is not a next test, and a higher percentage (13 percent) never does.

Regarding the style of time use, students show preference for single-tasking vs multitasking (Table III). The mean of the variable polychronicity[6] (2.98) is lower than the mean of the monochronicity (3.50) and although both distributions are quite homogeneous, it is more the one of the monochronicity (CV = 0.2936/CV = 0.3305). In short, the students define themselves more as people with preference to wait to finish a task before another, being foreseeable that in their future professional endeavor they should simultaneously carry out multiple tasks. In this sense, Kirchberg et al. (2015), when studying the labor context, find that the multitasking seems to have a general impact on a lower well-being and on the perception of a lower performance for the individual. Although on the other hand they also conclude that the tendency toward polychronicity seems to “absorb” in part the negative effects of multitasking on performance and personal well-being.

The students recognize that they are lucky with the study conditions they have at home, being always or almost always appropriate for more than half of them (62.0 percent) while a small percentage of them (6.9 percent) always lack the optimal requirements, which rises (18.4 percent) if those who rarely enjoy the favorable requirements for studying at home are included. This variable is not totally controllable by the student, but, in general, it is revealed as a “plus.”

Regarding the control of time, it is right to conclude that the students are prone to be disturbed by “les gloutons” of time, which brings lack of concentration, as the majority of the students (50 percent) consider there are, always or many times, avoidable and inescapable disturbing elements. Nevertheless, they think they use their time efficiently and they feel they can do it better.

### 4.2 Multivariate analysis

In order to detect the underlying dimensions of the variables observed more accurately, an exploratory factor analysis (EFA)[7] was carried out with the questionnaire questions[8] that attempt to “measure” short-term, long-term planning and attitudes and habits of students related to time management.

The initial results highlight the adequacy of the data, given that both the Kaiser–Meyer–Olkin (0.775) measure of sample fit and the Bartlett ($\chi^2(136) = 1,216,509; p < 0.000$) sphericity test presented adequate values.

The suitability of the method is confirmed by analyzing the communalities obtained, with the variables best explained by the model (communalities > 0.7) being those related to short-term planning and poly-diversity (Table IV).

The extraction method used was that of principal components, and as shown in Figure 1, it is advisable to consider the first five components[9], which explain 56.738 percent of the total variance of the system (Table V).

As shown in Table V, the first principal component explains 15.621 percent of the variance of the system and among the first five, 56.738 percent of the total variance of the system.
Undoubtedly, the challenge is to try to interpret these components, for which attention must be paid to the loadings factors, after a varimax rotation has been carried out (Table VI).

It can be said that the first component/factor is related to the prioritization of activities in the short term and their fulfillment; the second, with the planning of activities in the short term; the third, with the conditions of the study environment; the fourth with control of time and the fifth with time-use style.

5. Conclusion

Person’s perception and use of time is highly influenced by culture and in the globalized society of the beginning of the twenty-first century these cross-cultural differences must be analyzed in order to better understand them and therefore organize effective work teams.

In the current new and very competitive world of work, managing time efficiently can be a key ability, not always innate but which can be learnt, reason why we consider necessary that the university forms the students and prepares them for developing this fundamental skill.

Willing to know how the university students perceive and manage their time, we selected a case study and analyzed their habits and behaviors. The results of the research demonstrate that the students of the Business and Economics Faculty of the University of the Basque Country (UPV/EHU) are aware of the need for short-time planning in order to

<table>
<thead>
<tr>
<th>Component</th>
<th>Initial value</th>
<th>% variance after rotation</th>
<th>% accumulated after rotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4.160</td>
<td>15.623</td>
<td>15.621</td>
</tr>
<tr>
<td>2</td>
<td>1.638</td>
<td>14.561</td>
<td>30.182</td>
</tr>
<tr>
<td>3</td>
<td>1.427</td>
<td>10.037</td>
<td>40.219</td>
</tr>
<tr>
<td>4</td>
<td>1.288</td>
<td>7.577</td>
<td>48.763</td>
</tr>
<tr>
<td>5</td>
<td>1.133</td>
<td>6.666</td>
<td>56.738</td>
</tr>
</tbody>
</table>

Table V. Explained variance
achieve objectives through the correct use of time. On the other hand, they do not show the same behavior in relation to long-term planning. In the current knowledge society, the immediacy takes precedence over anything and students demonstrate with their behavior these types of characteristics, which is consistent with their tendency to procrastinate.

The correct use of time is intimately related to the setting of short-term priorities and the attempt to fulfill them, for which it is not enough to rely only on memory alone, being also necessary to draw up lists of activities to be carried out. Instruments such as agendas (on paper, digital) play a very important role in this process.

The analysis allows us to conclude that the decisive factor is not the amount of time available, but the use that is made of it, through a good organization of the priorities and activities to be carried out.

In the knowledge society determined by ICTs, where it is very easy to get distracted, managing time efficiently becomes a necessity not only at the university but also in the workplace, reason why it is essential to teach these skills to the students in order to prepare them for the optimal development of their activity in the professional world. The knowledge society has changed our relationship with knowledge and therefore the way of learning and teaching. In this new scenario, the university faces the challenge of teaching students to think and analyze, a lifelong learning, and not only transmit knowledge related to a specific area. The students must be prepared for avoiding procrastination, establishing priorities, planning and organizing multiple tasks, etc., employability skills fundamental in order to be ready for the work market.

The knowledge society requires the university to redefine its paradigms and form the students to live and work in a very competitive and changing scenario where time management is a key element. Therefore, the students must learn: to pose new problems and to find alternative solutions to real ones; to define objectives and to develop strategies to reach them; to distinguish the important from the accessory, etc., taking into account that time is a limited raw material that they must use effectively and efficiently.

To get a better time management the students should use a diary to set goals and the technique of timeboxing to fix the time needed to finish each task, as this favors setting priorities and making decisions. When defending the dissertation, or presenting any task/exercise required during the seminars, the students should also present the real time box and explain the possible differences between the original one and this one.

<table>
<thead>
<tr>
<th></th>
<th>F₁</th>
<th>F₂</th>
<th>F₃</th>
<th>F₄</th>
<th>F₅</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you try to meet the</td>
<td>0.858</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>priorities set for the</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>week?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you meet the priorities set for the week?</td>
<td>0.798</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you list the list of activities in an agenda?</td>
<td>0.856</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you make a list of activities to do during the week?</td>
<td>0.871</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you plan every day?</td>
<td>0.640</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you consider that there are adequate conditions in your home to study?</td>
<td>0.773</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you usually have the study table organized, with what you need at that time?</td>
<td>0.698</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you often find yourself doing things which interfere with your schoolwork simply because you hate to say “No” to people?</td>
<td>0.762</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have to deal with inescapable activities which interfere with your schoolwork?</td>
<td>0.784</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>If you have several activities to do, do you wait to finish one before starting another?</td>
<td>−0.822</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table VI. Rotated factor loadings
dedicated to carry out the task. They must develop awareness for where they spend their
time and time tracking, learning to be flexible and to say “no” in order to avoid
procrastination and distraction.

The challenge is so attractive that further research is coming to evaluate the results of
the proposed curriculum planning ideas, taking into account some descriptive variables
(gender, enrollment year, degree, morning or afternoon study, working or not while
studying, etc.).

Notes

1. The European convergence program indicates that “learning results are sets of competencies that
express what the student will know, understand or be able to do after completing a learning
process, short or long” (ANECA, 2003, p. 9). And the White Paper of Economy and Business
indicates that “the level of degree allows to obtain a qualification with professional qualification in
the European labor market. Its orientation is professional and must provide training in which basic
generic competences are integrated, transversal competences related to the integral formation of
people and the most specific competences that enable professional guidance” (p. 157).

2. Procrastination affects between 40 and 70 percent of university students and is closely related to
academic performance (see Pastana and Codina, 2014).

3. TSQ (Time Structure Questionnaire) by Bond and Feather (1988); TMBS (Time Management
Behavior Scale) in its original state of Macan et al. (1990) or modified Macan (1994); TMQ
(Time Management Questionnaire) by Britton and Tesser (1991) based on the study by Britton and


5. The range of possible values for each variable/item is included in the interval (1–5). Since short
planning is composed of seven items, it can therefore obtain values within the interval (7–35).

6. The possible range of values is included in the interval (1–5).

7. Although based on the TMQ questionnaire, some new dimensions have been considered, reason
why the EFA has been used instead of the confirmatory factor analysis (CFA).

8. A total of 17 items of the questionnaire have been used.


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Further Reading


Corresponding author

Maria Alvarez Sainz can be contacted at: maria.alvarezsainz@ehu.eus