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Non-technical skill gaps in Australian business graduates

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NON-TECHNICAL SKILL GAPS IN BUSINESS GRADUATES

ABSTRACT

Purpose: The need for 'job-ready' graduates has catalysed the development of non-technical skills in higher education institutions worldwide. Continued criticism of business school outcomes has provoked this examination of non-technical skill deficiencies in Australian business graduates. Comparing findings with existing literature on skill gaps in other developed, culturally-similar economies underscores the generality of identified problems and highlights to stakeholders in undergraduate education those areas requiring curricula review.

Design/methodology/approach: Two hundred and eleven managers/supervisors of business graduates and 156 business academics assessed the typical performance levels of Australian business graduates against a comprehensive framework of 20 skills and 45 associated workplace behaviours. Ratings were examined within and across the two samples and variations analysed by work area, business activity and business discipline.

Findings: Some differences were detected between academic and employer skill ratings of certain workplace behaviours. Respondents agreed that although graduates are confident and proficient in certain non-technical skills, they are deficient in vital elements of the managerial skill set. There were differences in employer ratings across certain business activities and work areas but none detected in academic ratings from different business disciplines.

Originality/value: Findings broadly align with literature from previous studies, highlighting the generality of presented skill deficiencies. The study suggests that although business schools are producing well-rounded graduates, they are overlooking the development of certain non-technical skills deemed essential in managers. This urges curricula reform and

raises questions on who is responsible for developing work readiness in graduates. The implications of differing perceptions of graduate performance are discussed.

KEY WORDS: Graduate, undergraduate, skill gaps, performance, employability, business.

TYPE OF PAPER: Research paper

Today's employers often require those completing undergraduate business degrees to add immediate value by participating successfully and with innovation in the workplace. It is widely acknowledged that undergraduates must develop non-technical skills, as well as disciplinary expertise, to achieve this goal (Hancock et al., 2009). Non-technical skills include the cognitive and soft skills that graduates require to apply their disciplinary knowledge and skills in the workplace. They are typically not job-specific, that is they are generic to a range of different work contexts (Sherer & Eadie, 1987). Prominent examples are working effectively with others, communication and self-management.

Industry, governments and accrediting bodies across developed economies thus now expect higher education providers (HEP) to incorporate non-technical skill development into undergraduate programs, the responsibility gradually shifting from the workplace to the classroom (Cassidy, 2006). This is challenged by some educators as 'distracting' universities from achieving their overarching goals of developing intellect, critical thought and the inquiry skills required of potential leaders (Starkey, Hatchuel & Tempest, 2004). Many believe this focus on employability has de-valued the once highly regarded and unique undergraduate degree as it has become 'marketized' (Kirp, 2003) and more synonymous with vocational offerings. Despite these concerns, the introduction of accreditation criteria and conditional funding rules for addressing graduate attributes are policy examples further catalysing non-technical skill development in HEPs.

Business schools, however, are criticised for persistent deficiencies in certain non-technical graduate skills in developed economies such as Australia (Business, Industry and Higher Education Collaboration Council [BIHECC], 2007), the US (Casner-Lotto & Barrington,

2006) and the UK (Council for Industry and Higher Education [CIHE], 2008; Institute of Directors [IOD], 2007). Deficiencies could be attributed to outdated curricula, inappropriate pedagogical techniques and/or inadequate opportunities for work-integrated-learning. Crebert (2002) acknowledges the role of stakeholder expectations, inertia and institutional encumbrances in constraining non-technical skill development in HEPs. The outcome is graduates' inability to apply successfully their acquired disciplinary knowledge and poor performance detrimental to graduates' own self-development as well as a fragile, global economy.

The aim of this study was to identify and examine the precise nature of non-technical skill deficiencies in those graduating from undergraduate business degree programs in Australia. The study examined and compared employer and academic perceptions of typical Australian business graduate performance in a broad and representative set of industry-relevant skills. Variations in perceived performance by business activity and functional work area for employers, and by business discipline for academics, were also investigated to enrich our understanding of skill gaps. Findings were then compared with existing literature on graduate skill gaps in other developed economies, particularly the USA and UK. The outcomes of the study highlight to stakeholders in undergraduate education those areas requiring curricula review and raises important questions on, first, precisely how this curriculum reform should be achieved and, second, who is responsible for implementing it.

METHOD

Participants

Five hundred organisations employing business graduates in Australia were invited to participate in the study. Of these, 143 took part and 211 individuals, each directly responsible

for supervising business graduates within these organisations, participated. There were no more than six respondents from any one organisation. Seventy percent of the sample was aged between 18 and 44 years and 53% was male. Fifty-nine percent of the sample had four or more years experience in supervising graduates in the workplace.

Business academics were defined as those directly involved in lecturing within university-level business undergraduate programs. Three hundred business academics, across 38 Australian universities, were invited to participate. The final sample comprised 156 individuals from 34 universities. Fifty-two percent of the sample was male and 60% of the sample was aged over 45 years. The sample comprised seasoned academics; 84% and 49% with more than four years experience in lecturing/tutoring and management/coordination experience in a university setting, respectively. Workplace experience in a business environment, however, appeared limited. Eighty-seven and 80% of the sample had less than four years experience as a business graduate and supervising business graduates in the workplace, respectively.

Table 1 summarises the business activity/work area breakdown for the employer sample and discipline breakdown for the academic sample. Academic respondents specialising in multiple areas were represented by the 'Combination' grouping. The 'Other' grouping comprises those individual disciplines with a frequency count of fewer than five. Both samples were considered broadly to represent the population. [**Table 1**]

Instrument

Employer and academic participants were both required to complete an online survey. Each survey comprised an initial section gathering demographic and business activity/work

area/discipline details. The main body of the survey assessed the typical performance levels of Australian business graduates against a comprehensive framework of 20 skills. The framework was created on the basis of a review of international employer-based studies of industry-relevant graduate skills in developed, culturally-similar economies since 1998 (Jackson, 2010). Jackson first identified 45 workplace behaviours, representing the knowledge, skills and attributes required of the modern business graduates, based on this review. These were then grouped conceptually into 20 skills based on prior theoretical and empirical association. The resulting skills, and their constituent behaviours, can be grouped into the meta-categories of cognitive processes and social, self-management and technical/administrative skills (see Tables 2, 3, 4 and 5). These align with Dierdorff, Rubin and Morgeson's (2009) taxonomy of managerial competencies which comprises conceptual, interpersonal and technical/administrative work role requirements.

An important aspect of the framework is that it is based on measurable behaviours and avoids operationalising abstract skill terms which are ambiguous and often subject to misinterpretation (Male & Chapman, 2005). The behaviours are defined as a process or activity which more clearly indicates the required outcome and the capabilities required to achieve it. This serves to make the behaviours more assessable in a university setting.

Employer respondents were asked to rate, on a scale of 1 (very poor) to 5 (excellent), the extent to which recent graduates in their work area were competent in each of the 45 behaviours. Academic respondents were asked to rate, on the same scale, the extent to which recent graduates in their undergraduate programs were competent in each of the behaviours. The employer survey instrument was pilot tested across a small sample of workplace supervisors/managers of business graduates in both the UK and Australia.

Procedures

Australian employers in direct supervisory/managerial roles were recruited by electronic mail via their Human Resource departments, relevant professional organisations or as postgraduate alumni from certain Australian universities. Potential academics involved in the facilitation of business undergraduate programs were identified through faculty web pages and advised of the study by electronic mail. Data for both samples were gathered between March and September 2009.

RESULTS

Summary and comparison of employer and academic perceptions

In gauging perceptions of typical graduate performance, a strong emphasis was placed on positive and negative ratings. Ratings of 4 and 5 (excellent) were summed and deemed to indicate the behaviours in which graduates perform most strongly. The percentage responses for ratings of 1 (very poor) and 2 were similarly summed to indicate behaviours of weak performance. These were calculated for both employers and academics and are summarised in tables specific to each meta-category (see Tables 2, 3, 4 and 5).

Kruskal-Wallis tests were performed to detect significant disparities in behaviour ratings between employers and academics. A family-wise Bonferroni adjustment was applied which retained alpha (α) at or below .05 for each meta-category. The adjusted α level and significant results, flagged with an asterisk*, are indicated in the table particular to each meta-category. The top ten behaviours, those with the largest proportion of 'strong' ratings, are marked ^{S1} to ^{S10} in the cells indicating strong performance. The bottom ten behaviours are similarly marked ^{W1} to ^{W10} in the cells indicating weak performance.

Cognitive processes

Within cognitive processes, there was broad agreement between the samples on where graduate strengths and weaknesses lie (see Table 2). **[Table 2]** For critical thinking, over 40% of each sample perceived typical graduate performance in evaluation to be strong and only a small minority as weak, a positive result. Pattern recognition and conceptualisation, however, did not rate as well with 35% of employers and 25% of academics declaring graduate performance as weak. Although this is counterbalanced with approximately one third of each sample assigning strong ratings, this disparity highlights an area requiring review, particularly as it is consistently rated as highly important in graduates (CIHE, 2008; Graduate Careers Australia [GCA], 2009) and an area of concern among employers (Casner-Lotto & Barrington, 2006; IOD, 2007).

Results for problem solving skills were strong with far more employers and academics rating graduate performance as strong rather than weak. This is encouraging, given it is highly desired in graduates worldwide (Australia Industry Group [AIG], 2006; Casner-Lotto & Barrington, 2006).

Employer perceptions of performance in decision management, deemed so vital in graduates (Casner-Lotto & Barrington, 2006; CIHE, 2008), were not as favourable. Employers assigned a significantly lower rating to decision making (α=.007) than academics $\chi^2(1) = 11.162$, p<.007. Over a third of employer respondents rated graduate performance as weak, counterbalanced with one quarter stating it was strong. This is exacerbated by a poor result for lateral thinking/creativity for employers with a third of the sample perceiving graduates as weak in this area. In regard to information management, approximately half of each sample deemed graduate performance as strong.

Social skills

Table 3 summarises the ratings for behaviours within the social skills meta-category. **[Table 3]** For political skills, the results for conflict resolution were dismal with approximately 40% of each sample classing typical graduate performance as weak. Graduates' ability to influence others fared better although results were mixed. One third in each sample rated performance as strong yet over a quarter assigned weak ratings, supporting literature on skill gaps in graduates' influencing and negotiation skills (IOD, 2007).

Both samples agreed on graduates' strengths in working effectively with others although ratings in social intelligence were the lowest of the four constituent behaviours. These perceived strengths in working effectively with others align with findings from previous studies (BIHECC, 2007; Casner-Lotto & Barrington, 2006; IOD, 2007) and literature on Generation Y graduates (Glass, 2007). This suggests that Australian business schools are meeting expectations in developing one of the most highly desired non-technical graduate skills (Hancock et al., 2009).

A high proportion of employers and academics agreed that graduates' abilities in verbal communication and, to a lesser extent, giving and receiving feedback are strong. Given oral communication is consistently cited in the top graduate selection criteria (GCA, 2009) and key to managerial success (Abraham, Karns, Shaw & Kenna, 2001), efforts should be directed at reducing its weaker ratings.

Within leadership skills, employers assigned a significantly lower rating (α=.004) to project management than academics $\chi^2(1) = 2.684$, $p<.004$. A consistently high proportion of

employers rated graduates as weak in leadership's other constituent behaviours. Although academic ratings were marginally better, these results highlight an area requiring urgent review as leadership skills are widely acknowledged as critical in graduates (Casner-Lotto & Barrington, 2006; CIHE, 2008).

Self-management skills

Interestingly, self-management attracted more significant differences (α=.003) between employers and academics (see Table 4). **[Table 4]** Although academics rated graduates favourably in personal ethics, an overwhelming majority of employers declared graduates as strong, resulting in a significant difference ($\chi^2(1) = 18.115$, $p<.003$). In light of recent corporate failures and the global economic crisis, attributed by some to the fostering of greed in business graduates (Ghoshal, 2005), ethical behaviour is unquestionably in the spotlight. It is extremely important to graduates (Robinson, 2005) and many studies confirm strong performance in this area (Casner-Lotto & Barrington, 2006; GCA, 2009; IOD, 2007).

In alignment with current literature on Generation Y, the majority of both samples agreed that graduates are self-confident creatures (Glass, 2007). Results for meta-cognition, the reflective element of self-awareness, were somewhat disappointing with approximately a quarter of each sample rating graduate performance as weak. Although this is counterbalanced with a third of both academics and employers assigning strong ratings, this disparity needs addressing as it considered in vital in graduates (Dacre Pool & Sewell, 2007). Results for lifelong learning were more favourable for employers, of whom 45% rated graduate performance as strong. This may be attributed to preferences for personal development and improvement in Generation Y graduates (Shaw & Fairhurst, 2008).

Employer ratings for self-discipline were good with over 45% perceiving graduates as strong in each of the constituent behaviours. Academics were less convinced and assigned a lower proportion of strong ratings and a higher proportion of weak ratings than their industry counterparts. Academic ratings for work/life balance were significantly lower ($\chi^2(1) = 9.078$, $p \leq .003$). Despite wide acknowledgement that work/life balance is of high priority to Generation Y (Maxwell, Ogden & Broadbridge, 2010), some evidence suggests they are not always successful in achieving it (Sturges & Guest, 2007).

Furthermore, a significant proportion of both cohorts agreed that graduates perform strongly in all aspects of performance and organisational skills. Findings depict a highly efficient worker who is able to multi-task and work independently. Although literature congratulates Generation Y graduates in these abilities (Glass, 2007), employer-based literature on graduates' organisational skills is less favourable (IOD, 2007).

The vast majority of respondents in both groups perceived graduates as performing strongly in social/corporate responsibility, an expected result given its importance to today's graduates (PriceWaterhouseCooper, 2008). Strong performance is well documented in previous employer-based studies (Casner-Lotto & Barrington, 2006; GCA, 2009; IOD, 2007) and literature specific to Generation Y graduates (Glass, 2007). Personal accountability was also deemed an area of strong performance by at least half of each sample.

In terms of work ethic, half of employers assigned strong ratings to drive, significantly higher than their academic counterparts ($\chi^2(1) = 22.131$, $p < .003$). This variation aligns with contradictions in the literature, some employer-based studies applauding graduates for their high levels of motivation and dedication in the workplace (IOD, 2007), whilst others highlight

it as an area for concern (Casner-Lotto & Barrington, 2006). There were, to a lesser extent, variations ratings for initiative between the two samples. Academics ratings were generally lower, over a quarter declaring graduates as weak in this area.

Technical/administrative skills

Ratings of behaviours within the technical/administrative meta-category are summarised in Table 5. [**Table 5**] The pattern of response for business principles indicates that a third of employers and academics deemed performance as strong, ratings of weak performance also not raising alarm. The results for numeracy were very positive for employers, slightly less so for academics. Graduates were perceived to have strong technology skills by a significant proportion of both samples, an expected result in light of literature on Generation Y graduates (Glass, 2007) and previous studies (Casner-Lotto & Barrington, 2006; GCA, 2009).

Graduate performance in innovation was considered strong by a large proportion of employers and academics. This may alleviate industry concerns that graduates lack the skills to drive future change and innovation in Australia (AIG, 2006). Studies from the UK echo these concerns (Chartered Institute of Personnel and Development [CIPD], 2006) yet the majority of 400 US employers believed graduates were not deficient in creativity/innovation (Casner-Lotto & Barrington, 2006).

From an employer perspective, public speaking skills are poorly developed with over a quarter of respondents rating them as weak. Other elements of the formal communication skill set attracted a favourable response from both cohorts although more so by academics. Their particularly strong ratings for written communication contradict documented industry

concerns (AIG, 2006; Casner-Lotto & Barrington, 2006; CIHE, 2008) and are somewhat surprising as educators have lamented the decline in graduates' writing skills (Marrin, 2006).

In this meta-category, the only behaviour with significantly different ratings (α=.005) was commercial awareness ($\chi^2(1) = 8.944$, $p<.005$). Employers' relatively poor ratings align well with literature mourning the lack of business acumen in business graduates (IOD, 2007).

Variations in skill ratings by context

Academics by business discipline

Kruskal-Wallis tests, conducted using the family-wise Bonferroni adjustment for each meta-category, did not indicate any significant differences in perceived graduate skill levels among academics from different business disciplines. This may be due to non-technical skills being developed in units or bolt-on programs core to all disciplines.

Employers by work area

Kruskal-Wallis tests, using the family-wise Bonferroni adjustment, were conducted to detect any significant differences in perceived graduate skill levels among employers from different work areas. Results indicated only a significant difference (α=.004) for verbal communication ($\chi^2(5) = 22.439$, $p<.004$). The majority of respondents from Quantitative & Analytical, People Management, and Research & Policy work areas assigned higher ratings than those from Finance, Consulting & Marketing and the Other grouping. These results are somewhat surprising as conventional understanding of Marketing and Consulting graduates would presume greater proficiency in verbal communication, given the heavy foci on interacting with a wide range of stakeholders. Assuming that Finance is heavily populated

with Accounting graduates, however, this result does align with employer-based studies heavily criticising their graduate's communication skills (Hancock et al., 2009).

Employers by business activity

Kruskal-Wallis tests, using the family-wise Bonferroni adjustment, detected some minor significant differences in perceived graduate skill levels among employers from different business activities. Within cognitive processes, a significant variation (α=.007) was detected for pattern recognition and conceptualisation ($\chi^2(9) = 31.128$, $p<.007$. Within social skills, there were significant variations (α=.004) for verbal communication ($\chi^2(9) = 24.179$, $p\leq.004$) and giving and receiving feedback ($\chi^2(9) = 29.508$, $p<.004$). Within self-management, a significant variation (α=.003) was detected for goal and task management ($\chi^2(9) = 24.442$, $p<.003$). Finally, within the technical/administrative meta-category (α=.005), a significant variation was detected for commercial awareness ($\chi^2(9) = 26.755$, $p<.005$).

The overarching trends were that, first, respondents from Education and Government (Regulatory Body) consistently assigned higher skill ratings. Second, those from Financial Services, Government (Transport & Infrastructure) and Professional Services assigned lower skill ratings across the identified behaviours. These trends could be attributed to a disparity in expectations of graduate performance among different business activities. Unrealistically high expectations of graduate outcomes among employers (Johnston & Watson, 2004) are more likely to perpetuate dissatisfaction with actual performance. These results could, however, reflect genuine differences in graduate performance, prompting a review of graduate recruitment and development practices in these business activities.

CONCLUSION

Many believe the overarching goal of business schools is to develop a pool of effective future leaders (Cornuel, 2005). This study of Australian business graduates highlights weakness in certain non-technical skills which are widely considered imperative for successful managers. Findings on graduate performance broadly align with existing literature on graduate skill gaps in Australia and other developed, culturally-similar economies, validating and strengthening concerns that business schools are not meeting required industry outcomes in certain areas.

Areas of weakness

Key elements of the contemporary managers' skill set in which graduate performance was considered weak were certain behaviours comprising critical thinking and decision management. Critical thinking is widely considered the cornerstone of graduate education, "a defining characteristic of a university graduate" (Phillips & Bond, 2004, p. 277), and, along with decision making, a key element of the managerial tool box (Dulewicz & Higgs, 2005).

Disappointing ratings for leadership skills also raises concern as these are considered critical in graduates (CIHE, 2008; GCA, 2009) and integral to managerial success (Dulewicz & Herbert, 1999). There is international debate on whether leadership skills can or should be developed in the classroom (Posner, 2009), aggravating efforts to alleviate the skills gap and urging collaboration among stakeholders to achieve the required graduate outcomes in these skill areas.

A further area of weakness increasingly important in contemporary managers is conflict resolution (Luthans & Lockwood, 1984). The need for managers to address and resolve contentious issues with stakeholders is heightened as today's workforce frequently

encompasses four different generations and a rich ethnic and cultural mix. Furthermore, perceived weak performance in public speaking, a traditionally important aspect of managerial work (Dulewicz & Herbert, 1999), and commercial awareness, also considered vital in managers (Kirkpatrick & Locke, 1991), must be addressed by HEPs.

Finally, meta-cognition was identified as an area of deficiency. This ability and willingness to self-reflect is a key element of emotional intelligence (Boyatzis, 2009). Goleman (1998) claims that when distinguishing high from average management performers "nearly 90 percent of the difference in their profiles was attributable to emotional intelligence factors rather than cognitive abilities" (p. 94). Although there were strong performance ratings in other behaviours comprising emotional intelligence, such as social intelligence, political skills, working effectively with others and the ability to self-manage; weak meta-cognitive skills must be addressed as they are considered a vital ingredient of successful management (Eriksen, 2009).

These findings are somewhat counterbalanced by evidence that graduates are performing well in certain other skills also considered key to successful management. These are personal ethics, drive, organisational awareness and self-confidence (Kirkpatrick & Locke, 1991); team working and initiative (Abraham et al., 2001); organisational skills (Dulewicz & Herbert, 1999); self-discipline (Anderson, Krajewski, Goffin & Jackson, 2008) and professional responsibility (Bhattacharya, Sen & Korschun, 2008). Kirkpatrick and Locke also emphasised the importance of good cognitive skills in managers, partially met with perceived strong performance in evaluation, information management and problem solving, the latter considered vital in managers (Dulewicz & Herbert, 1999).

Debate on the overarching role of business schools is extensive, some arguing it is to develop intellect and higher order skills and others focusing more on the economic value of outcomes (see Starkey & Tempest, 2008). Hay (2008) argues the role of business education extends to graduates adding social, academic and personal value through applying their acquired skills and knowledge in a range of environments. Given these broader perspectives on the role of business education, our findings offer a more favourable snapshot of business school achievements as they appear to be producing well-rounded graduates. Although gaps remain in certain industry-required skills, graduates are socially adept, responsible, confident, self-disciplined, ethically informed, organised and efficient. They are fairly motivated, value self-improvement and are proficient in basic skills and certain cognitive processes. Interpreting the level of concern raised from these findings is thus partially dependent on the perceived role of undergraduate business education. Those favouring the development of potential leaders will find the results more disappointing than others emphasising the broad development of generic skills and graduate ability to apply disciplinary knowledge in the workplace.

Differences in academic and employer perceptions

Certain significant differences in academic and employer perceptions cause concern and may be fuelling skill gaps. Decision making, for example, attracted significantly lower employer ratings and has been flagged as an area suffering sizeable gaps between industry requirements and graduate performance (CIHE, 2008). Significantly weaker employer ratings in commercial awareness highlight another area experiencing gaps between industry requirements and graduate outcomes (IOD, 2007). These findings suggest poor graduate outcomes are being overlooked by academics and indicate a strong need for curriculum review to realign with industry needs.

Other significant differences in ratings, however, may have little implications for undergraduate curricula. Academics' weaker ratings for work/life balance may simply be the result of growing trends in undergraduates juggling significant employment commitments with their studies. Further, differences in ratings for personal ethics concern magnitude rather than variations in the actual direction of ratings.

Certain differences may, however, underscore an underlying problem of a lack of appreciation of contemporary workplaces by academics. For example, variations in ratings for project management and drive may be attributed to different perceptions on the precise nature and application of these behaviours in the workplace. The demographic breakdown of academic respondents confirms respondents' limited experience as business graduates and/or supervisors of business graduates in the workplace. This notion of the academic being disconnected with industry is not new (see Fleming, 2008) and could be exacerbating graduate skill gaps.

Contextual variations

Perceptions of graduate performance did not vary across different business disciplines. Only minor variations were detected in performance across different work areas and business activities. Although some argue contextual variations exist in required graduate skill sets, there is evidence suggesting these are in fact generic across different work contexts (see Jackson & Chapman, 2011). The generality of required skill sets and graduate outcomes strengthens the argument for the limited influence of work context on behaviour.

Curriculum reform: responsibilities and difficulties

Although findings show business schools are successfully developing certain managerial skills, those remaining underdeveloped require immediate review. The culminating effect of continued deficiencies in leadership, critical thinking, self-reflection, conflict management and decision making skills is an inadequate cohort of future managers, potentially devastating in the face of beleaguered economies still recovering from the global financial crisis and growing competition from the East.

Literature on strategies for curriculum renewal and examples of best practice (Barrie, 2007; Oliver, Jones, Ferns & Tucker, 2007) are equally balanced with literature on difficulties in implementing curriculum reform. Problems include poor faculty skills and a lack of institutional resources (see Walker & Black). A more fundamental problem is that despite policy consensus on developing non-technical skills in higher education, many practitioners are inherently opposed to aligning undergraduate curricula with industry requirements and therefore challenge strategies for curriculum renewal.

Despite this resistance, reform is necessary. The current relationship between higher education and industry on curriculum development is largely reactive. Industry actively dictates required graduate outcomes to universities through professional association accreditation criteria and, in Australia, the development of learning and teaching academic standards for undergraduate programs (Australian Learning and Teaching Council [ALTC], 2009). Despite considerable efforts to incorporate professional learning in Australian business undergraduate programs (see Lawson, Taylor, Papadopoulos, Fallshaw & Zanko, 2010), current strategies do not appear to sufficiently address graduate skill gaps. Further collaboration and direct industry involvement in developing non-technical skills is necessary

to enhance graduate outcomes and constitute successful reform. Industry must be willing to share responsibility in nurturing non-technical skills, if not at university then in workplace training programs. In addition, actively investigating student perceptions on strategies for developing non-technical skills would add value and extend the ownership and responsibility of graduate outcomes further.

Importantly, it is not only the learning of these skills that is the responsibility of HEPs, industry and graduates; but also their transfer to different contexts. Each party can significantly influence the degree to which acquired skills may be transferred from the classroom to workplace (see Jackson & Hancock, in-press). Similarly, graduate employability can be influenced by, and is therefore the responsibility of, these three stakeholders (McQuaid & Lindsay, 2005). The time has come for education practitioners, employers and graduates to accept that existing skill gaps do not represent a failing of universities but the outcome of poor collaboration among stakeholders in undergraduate education in achieving required outcomes.

Limitations of the study

Cultural and/or workplace differences pertaining to the discussed developed economies, predominantly the UK and USA, were not analysed as part of this study. More problematic is that the study was based on the notion that an individual graduate's employability is guaranteed upon successful development of the defined non-technical skills in a university setting. This does not account for difficulties in transferring acquired non-technical skills from the university classroom to the workplace (see Jackson & Hancock, in-press) nor the range of external factors and personal circumstances which may influence individual employability (McQuaid & Lindsay, 2005). This study's analysis of stakeholder perceptions

of graduate performance in non-technical skills therefore represents a measure of one, albeit significant, aspect of graduate employability

Contribution and future directions

Broad agreement on skill levels among academics and employers, in congruence with alignment with international studies from culturally-similar economies, validates and strengthens the study's findings. This agreement between the 'output' and 'input' perspectives of graduate skill gaps suggests the problem does not lie with graduates' inability to transfer acquired skills but instead with inadequate development.

The study contributes to existing literature on graduate employability in two ways. First, it provides empirical evidence of the need to review certain areas of business undergraduate curricula, pedagogical strategies in developing these skills and/or any institutional factors hindering current practice. There is extensive literature on clarifying required non-technical skills in business graduates but far less on graduate performance. As current initiatives in weak areas appear not to be working, it is time for industry to share responsibility for the successful development of certain non-technical skills which are not flourishing in the university setting. The importance of collaboration among students, employers and educators for successful curriculum reform is widely acknowledged (Oliver, Jones & Fearns, 2008); the message strengthened by this study. Second, differences in employer and academic performance ratings provide possible explanations for the continued existence of certain graduate skill gaps and/or highlight the need for practitioners to gain an appreciation of contemporary workplace practices.

A comparative analysis with student perceptions on performance may serve to highlight additional areas for curricula review. In addition, empirically investigating significant

variations in ratings by sex and country of origin may inform literature on gender in management and the globalisation of management. This study urges reform in the development of critical thinking, decision making, self-reflection and leadership skills in undergraduates and collaboration among industry, HEPs and graduates in enhancing graduate outcomes.

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Table 1 Sample breakdown by business activity/work area/discipline

Variable	Sub-category	Employer *n*=211	%
Employer Business Activity	Education	13	6
	Financial Services	55	26
	Government Regulatory Body	31	15
	Government – Transport and Infrastructure	14	7
	Government – Financial Body	13	6
	Aid, Health and Community	10	5
	Information, Media & Telecommunications	23	11
	Property, Land & Infrastructure	18	8
	Professional Services	20	9
	Manufacturing, Retail & Energy	12	6
	Not Stated	2	1
Employer Work Area	**Finance:** Accounting, Insolvency, Audit & Assurance, General	50	24
	Quantitative: Compliance, Procurement, Valuation, IT & Information	36	17
	People Management: HR, Project Management & Corporate Services, General Management	57	27
	Consulting & Marketing: Tax consulting, Marketing & Sales, Business Consulting	38	18
	Research & Policy: Research, Administration, Policy Development	27	13
	Other	3	1
		Academic	
		***n*=156**	**%**
Academic Discipline	Marketing	23	15
	Finance & Quantitative	54	35
	Management & People	46	29
	Information Management	5	3
	Economics	9	6
	Other (Operations Management, Retail, Legal Framework & Public Relations)	8	5

Table 2 Skill performance ratings – cognitive processes

Skill	Behaviour	Descriptor	Employers		Academics	
			Sum of % of total responses		Sum of % of total responses	
			Ratings 1 & 2	Ratings 4 & 5	Ratings 1 & 2	Ratings 4 & 5
Critical thinking	Pattern recognition and conceptualisation	Recognise patterns in detailed documents and scenarios to understand the 'bigger' picture.	35.4[W6]	33.5	25.2 [W6]	32.2
	Evaluation	Recognise, evaluate and retain key points in a range of documents and scenarios.	16.8	42.9	15.4	40.0
Problem solving	Analytical/convergent reasoning	Use rational and logical reasoning to deduce appropriate and well-reasoned conclusions.	18.0	44.7	15.8	48.2
	Diagnosing	Analyse facts and circumstances and ask the right questions to diagnose problems.	21.0	44.1	15.1	39.6
Decision management	Lateral thinking/creativity	Develop a range of solutions using lateral and creative thinking.	33.4[W8]	31.2	24.5 [W8]	27.4
	Information management	Retrieve, interpret, evaluate and interactively use information in a range of different formats.	17.1	47.4	14.3	53.2[S8]
	Decision making*	Make appropriate and timely decisions, in light of available information, in sensitive and complex situations.	36.5[W5]	25.5	15.8	35.3

[W] top ten weakness

[S] top ten strength

* significant difference in ratings between samples

Table 3 Skill performance ratings – social skills

Skill	Behaviour	Descriptor	Employers		Academics	
			Sum of % of total responses		Sum of % of total responses	
			Ratings 1 & 2	Ratings 4 & 5	Ratings 1 & 2	Ratings 4 & 5
Political skills	Influencing others	Defend and assert their rights, interests and needs and convince others of the validity of one's point of view.	25.5	35.1	28.3 [W5]	35.1
	Conflict resolution	Address and resolve contentious issues with key stakeholders.	39.3[W3]	24.5	42.0 [W1]	19.1
Working effectively with others	Task collaboration	Complete group tasks through collaborative communication, problem solving, discussion and planning.	10.1	62.1[S5]	7.7	73.2[S1]
	Team working	Operate within, and contribute to, a respectful, supportive and cooperative group climate.	8.6	69.6[S3]	6.1	59.5[S5]
	Social intelligence	Understand the complex emotions and viewpoints of others and respond sensitively and appropriately.	22.6	39.8	20.6	34.3
	Cultural and diversity management	Work productively with people from diverse cultures, races, ages, gender, religions and lifestyles.	5.3	69.0[S4]	11.4	59.5[S4]
Oral communication	Verbal communication	Communicate orally in a clear and sensitive manner which is appropriately varied according to different audiences and seniority levels.	21.0	47.9	19.2	48.5
	Giving and receiving feedback	Give and receive feedback appropriately and constructively.	21.5	39.3	19.2	33.8
Leadership skills	Project management*	Manage projects (e.g., allocate resources, obtain cooperation, monitor progress, ensure quality, anticipate complex issues and delegate as required).	36.6[W4]	27.3	17.3	47.2
	Performance management	Motivate, support and develop others and manage their performance.	42.6[W2]	22.9	25.1 [W7]	28.3
	Meeting management	Facilitate meetings according to an agenda and meet agreed objectives.	33.8[W7]	26.2	21.2	37.8
	Developing others	Instructively coach and help others learn in the workplace.	45.9[W1]	18.0	32.2 [W3]	22.1

[s] top ten strength

[w] top ten weakness

* significant difference in ratings between samples

Table 4 Skill performance ratings – self-management skills

Skill	Behaviour	Descriptor	Employers		Academics	
			Sum of % of total responses		Sum of % of total responses	
			Ratings 1 & 2	Ratings 4 & 5	Ratings 1 & 2	Ratings 4 & 5
Personal ethics	Personal ethics*	Remain consistently committed to and guided by core values and beliefs such as honesty and integrity.	5.3	73.7[S1]	10.7	49.3[S10]
Confidence	Self-efficacy	Be self-confident in dealing with the challenges that employment and life throw up.	9.2	58.6[S6]	8.5	53.9[S7]
Self-awareness	Meta-cognition	Reflect on and evaluate personal practices, strengths and weaknesses in the workplace.	25.7	33.9	24.2 [W9]	33.6
	Lifelong learning	Actively seek, monitor and manage knowledge and opportunities for learning in the context of employment and life.	17.5	45.9	23.4 [W10]	39.8
Self-discipline	Self-regulation	Understand and regulate their emotions and demonstrate self-control.	11.5	50.8	16.4	37.5
	Stress tolerance	Persevere and retain effectiveness under pressure or when things go wrong.	16.4	45.4	21.1	36.8
	Work/life balance*	Understand the importance of well being and strive to maintain a productive balance of work and life.	12.0	50.3	23.4	36.8
Performance	Efficiency	Achieve prescribed goals and outcomes in a timely and resourceful manner.	9.0	54.8[S8]	7.2	63.2[S3]
	Multi-tasking	Multi-task.	18.5	47.5	10.4	42.4
	Autonomy	Complete tasks in a self-directed manner in the absence of supervision.	20.1	43.6	18.4	48.0
Organisational skills	Goal and task management	Set, maintain and consistently act upon achievable goals, prioritised tasks, plans and realistic schedules.	19.5	41.3	12.0	45.6
	Time management	Manage their time to achieve agreed goals.	14.6	43.5	15.2	44.0
Professional responsibility	Social responsibility	Behave in a manner which is morally and socially responsible (e.g., consistent with company policy and/or broader community values).	5.5	72.8[S2]	7.3	64.5[S2]
	Accountability	Accept responsibility for own decisions, actions and work outcomes.	13.9	52.8[S10]	16.1	50.0[S9]
Work ethic	Drive*	Go beyond the call of duty by pitching in, including undertaking menial tasks, as required by the business.	17.2	53.3[S9]	33.0 [W2]	29.8
	Initiative	Take action unprompted to achieve agreed goals.	20.0	40.0	29.0 [W4]	28.2

[s] top ten strength

[w] top ten weakness

* significant difference in ratings between samples

Table 5 Skill performance ratings – technical/administrative skills

Skill	Behaviour	Descriptor	Employers		Academics	
			Sum of % of total responses		Sum of % of total responses	
			Ratings 1 & 2	Ratings 4 & 5	Ratings 1 & 2	Ratings 4 & 5
Business principles	Use of business concepts	Understand, evaluate and apply the methods, policy, theory, research and legislation of business management.	18.5	36.5	20.0	36.1
Core business skills	Numeracy	Analyse and use numbers and data accurately and manipulate into relevant information.	14.2	49.7	22.5	42.6
	Technology	Select and use appropriate technology to address diverse tasks and problems.	15.2	56.4[S7]	13.5	48.4
Innovation	Entrepreneurship	Initiate change and add value by embracing new ideas and showing ingenuity and creativity in addressing challenges and problems.	21.4	45.9	21.3	40.2
	Change management	Manage change and demonstrate flexibility in their approach to all aspects of work.	17.0	38.8	14.2	37.0
Formal communication	Public speaking	Speak publicly and adjust their style according to the nature of the audience.	27.4[W10]	36.9	17.6	40.8
	Meeting participation	Participate constructively in meetings.	20.1	42.5	13.6	37.6
	Written communication	Present knowledge, in a range of written formats, in a professional, structured and clear manner.	22.9	42.4	12.8	56.0[S6]
Environmental awareness	Organisational awareness	Understand organisational structure, operations, culture and systems and adapt their behaviour and attitudes accordingly.	16.6	43.3	20.9	39.6
	Commercial awareness*	Understand and account for local, national and global economic conditions and their influence on business success.	31.2[W9]	25.0	23.3	44.4

[s] top ten strength

[w] top ten weakness

* significant difference in ratings between samples