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Skill mastery and the formation of graduate identity in Bachelor graduates: evidence from Australia

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Abstract

Mastery of certain generic skills and the successful formation of pre-professional identity are widely considered to influence graduate work-readiness and job attainment. Given their links with enhanced productivity, performance and innovation, skill development and graduate identity appear critical amidst ongoing global stagnation in advanced economies. This paper focuses on the success of higher education in developing generic skills and graduate identity using national data ($n=80,891$) for 51 providers. It investigates the influence of certain demographics, study and degree characteristics on these important areas of undergraduate curricula. Further, it gauges recent graduate perceptions on the importance of skill development to post-graduation employment and how these beliefs vary across different employment contexts. Implications for how education practitioners can produce graduates with the skills, self-belief, outlook and confidence to attain a graduate level job are discussed.

Key words

Employability; generic skills; graduate identity; Australia; employment

Introduction

The need to produce graduates who are adequately prepared for work is increasingly emphasised by relevant stakeholders including employers, parents, students and, to a degree, academic practitioners. One might argue this was always expected of those graduating from Bachelor degree programs, given the significant time and finance invested, yet this was implicit and not subject to the same assurance of learning measures now required by governments and professional accreditation bodies (Fraser and Thomas 2013). A different view is that the traditionally loose relationship between higher education (HE) and industry – with “employers ... reasonably responsive to generic academic profiles” (Tomlinson 2012, 410) has been superseded by industry concerns that HE is not able to meet the graduate labour market needs. Tomlinson draws on different studies to conclude this may be due to new forms of degree provision which produce a more heterogeneous mix of graduates, state-driven efforts to increase university outputs and increased competition in global graduate labour markets.

The focus on tangible graduate outcomes has resulted in higher stakeholder expectations and an intensified global pursuit of the work-ready graduate, accelerated by recent softening in graduate labour markets and ongoing global economic stagnation. The need for graduates to establish positional advantages in highly competitive labour markets are well documented (Brooks and Everett 2009). For student and parent stakeholders, the motivation for studying at undergraduate level is increasingly related to financial gain; the Bachelor degree considered instrumental to enhanced employment outcomes (Naidoo and Jamieson 2005), although the massification of HE and economic decline have eroded the elevated status and salary premiums traditionally experienced by graduates (Elias and Purcell 2013; Tomlinson 2012). For industry, high functioning and quality graduates are essential for

strong organisational performance, competitive advantage and national prosperity (Confederation of British Industry [CBI] 2011). While some academics consider HE's engagement with the graduate employability agenda beyond their primary role of developing disciplinary expertise (Bourner et al. 2011), resistance appears futile as the permanency of this shift to the commercialisation of HE – where curricula design, content and delivery increasingly caters to industry needs - is now firmly entrenched.

There has been considerable attention in recent years to conceptualising graduate employability and clarifying precisely what attributes, capabilities and attitudes are required of those entering post-graduation employment. One area receiving considerable attention is mastery of certain generic skills, typically including team-working, communication, critical thinking and self-management (Lowden et al. 2011). These competencies, attributes and capabilities reside under the umbrella term of generic skills although this terminology is interchanged with professional, core, key or employability skills. Ambiguity in the precise meaning of these skills is noted at both undergraduate (Barrie 2006) and postgraduate (Borthwick and Wissler 2003) level. Generic skill outcomes are an important component of any modern model or theoretical interpretation of graduate employability; the skills-list approach dominating literature and HE initiatives, policies and practices on the development and assessment of graduate employability.

Tomlinson (2012) asserts the importance of broadening our understanding of graduate employability beyond the skills-list approach and the parameters established by policymakers. He emphasises the need to develop “work-related dispositions and identities” (409) for post-graduation employment and future career experiences. Evidence of the formation of graduate identity to produce employable and high functioning novice graduates

is emerging as a key construct in the employability literature (see, for example, Holmes 2013; Tomlinson 2012). Holmes emphasises an individual must ‘become’ a graduate, not just by formally achieving a degree award, but must “act in ways that lead others to ascribe to them the identity of being a person worthy of being employed (i.e. in the kind of job generally considered appropriate to someone who has been highly educated)” (549). Thus, an emergent graduate identity is required to successfully engage with prospective employers and is integral to employability. Holmes differentiates between this ‘processual’ perspective of employability and the ‘possessive’ perspective, which focuses on the acquisition and demonstration of skills, and the ‘positioning’ perspective whereby employment outcomes – considered indicative of the degree to which one is employable - are largely determined by social status.

There is global dissatisfaction among industry stakeholders in HE’s efforts to produce work-ready or ‘employable’ graduates (Business Industry and Higher Education Collaboration Council [BIHECC] 2007; Helyer 2011). Disparity between industry expectations and higher education provision typically focuses on generic skills with documented gaps in leadership, critical thinking, decision-making and communication skills (see Jackson 2012). As a sector, HE has largely responded by embedding generic skills in core curricula, through the introduction of standalone, or parallel, skills programs and/or work-integrated learning (WIL) initiatives. There has also been increasing acknowledgement of the important role of career management skills (see Bridgstock 2009), also considered deficient in new graduates (see McKeown and Lindorff 2011), in job attainment and success. There has, however, been relatively little consideration of the role of graduate identity. This study evaluates the development of generic skills and graduate identity formation in undergraduates using national Australian data. It attempts to build on existing empirical work

to substantiate stakeholder assessments of HE success, or otherwise, in developing these important areas of undergraduate curricula. Given the influential role of certain demographics, study and degree characteristics on skill development (see Jackson 2012) and graduate identity formation (Tomlinson 2012), these are also a focal point.

The research objectives are therefore to: (i) evaluate the importance of generic skills, from a graduate perspective, on post-graduation employment and identify any background characteristics which may influence perceived importance; (ii) evaluate the development of generic skills and graduate qualities, from the graduate perspective, in those recently graduating from Bachelor degree programs in Australia; and (iii) identify any significant variations in the perceived development of skills and graduate identity for a range of demographic, study and work characteristics. The objectives are addressed using national data, gathered in the Australian Graduate Survey, on 80,891 graduates of Bachelor degree programs in Australia. This paper is structured to provide a background on the importance of graduate identity formation to employability and the need to establish empirical evidence of graduate performance in skill development and identity formation given industry dissatisfaction with current graduate achievements. This will be followed by an outline of methodology, presentation of results and discussion of findings.

Background

Importance of graduate identity

There is an emergent view that employability should encompass the formation of graduate identity or ‘graduate like qualities’ (Glover, Law and Youngman 2002; Holmes 2013). Glover et al. look beyond the skills and identify ‘graduateness’ as critical to employability; defining it as “a set of qualities that usually mark a person who has undertaken

a degree course” (303). Literature suggests graduate identity includes having a sense of meaning and self-esteem (Henkel 2005); confidence (Nicholson et al. 2013); a broad understanding of disciplinary knowledge (Reid et al. 2008); a focus on personal development and lifelong learning (Bridgstock 2009) and the capacity to transfer skills across contexts (Jackson 2013a). Hinchliffe and Jolly (2011) argue the ‘graduate experience’ encompasses values, intellectual rigour, performance and engagement. The Department of Education, Employment and Training (2000) highlighted the importance of self-belief, lifelong learning and an ability to secure and retain employment in our consideration of graduate employability. Graduate identity is synonymous with professional identity, defined as “‘self-image which permits feelings of personal adequacy and satisfaction in the performance of the expected role’ (Ewan 1988, 85). The graduate, however, may be classed as a pre-professional who is in the unique position of transitioning from the culturally different settings of HE to workplace (Candy and Crebert 1991).

Hinchliffe and Jolly (2011) argue the focus in HE should be on the process of developing graduate identity rather than simply the possession of certain skills. They argue “universities and government would be better employed promoting student employability indirectly through the promotion of graduate identity and well-being ... rather than directly through employability skills” and that “employers themselves are not unsympathetic to this approach” (582). In alignment, Trede et al. (2012) highlight tensions in the perceived role of HE in developing professional identity. Cornelissen and van Wyk (2007), for example, argue universities play a critical role in the professional socialization of students to give insight into professional ideology, motives and attitudes. West and Chur-Hansen (2004) assert the workplace is significantly more influential in the development of professional identity than universities; the incorporation of work-integrated learning, such as placements, practicums

and internships, into HE therefore forming a valuable bridge which connects the two settings. The formation of graduate or pre-professional identity provides a valuable step in enabling individuals to apply their learning in new and different contexts due to perceptions of better fit and reduced culture shock (see Reid et al. 2008). Further, longitudinal research confirms that a graduate's initial experiences in the labour market will influence the development of their future professional identities (see Tomlinson 2012).

CBI's (2011) more recent definition of employability is evidence of this paradigm shift in the conceptualisation of graduate employability. It argues employability now refers to "a set of generic softer skills and competencies. In particular, personal attributes that can be summed up as a positive attitude are critical to being employable. A positive attitude encapsulates characteristics such as a willingness to take part and openness to new activities and ideas... It underpins and links together the other key capabilities" (13). Similarly, Bourner et al. (2011) differentiate between 'old vocationalism', where employers define required skills and HE responds accordingly through curriculum design, with 'new vocationalism' where undergraduate education focuses an ability to learn and continue learning; what they consider as fundamental to workplace performance. Here "graduates success and overall efficacy in the labour market is likely to rest on the extent to which they can establish positive identities" (Tomlinson 2012, 425). Although literature on graduate identity remains largely at the stage of conceptualisation, there is some evidence it positively influences graduate success in the labour market (Purcell et al. 2013; Tomlinson 2012).

Evaluating skill outcomes and identity formation

There is considerable evidence to suggest industry is dissatisfied with the skill levels of new graduates transitioning into the workforce (CBI 2011; Mourshed et al. 2013). Skill

gaps are particularly apparent in Australia in innovation and enterprise (Business Council of Australia [BCA] 2006), self-management and planning and organising, although there is documented improvement in team-working (Graduate Careers Australia [GCA] 2012). Measures of skill performance span self-report data from the student/graduate perspective; curriculum mapping and assessment outcomes in parallel units or aspects of core curricula dedicated to skill development (see Fraser and Thomas 2013). Recent international research shows work-integrated learning, embedded content in core curricula and workshop sessions are more popular methods of delivery than courses dedicated to skill development (Department for Business, Innovation and Skills 2011). Skill gaps are weak graduate skill outcomes and have been attributed to a lack of suitability and confidence among academics (De La Harpe and David 2012); a lack of shared interpretation of the precise meaning and importance of required skills among stakeholders (Barrie 2006) and those skills which are taught not reflecting the demands of professional practice (Tomlinson 2012). Tomlinson maintains this has largely been explained by universities “focusing too rigidly on academically oriented provision and pedagogy, and not enough on applied learning and functional skills” (412).

There has been some empirical research on identity formation among students with considerable focus on the process of development and how identity changes during university years (see Lounsbury et al. 2005). Trede et al. (2012), in their review of studies on the development of professional identity, identified an authentic learning experience, reconciling personal and professional identities and students engaging with and pursuing suitable development opportunities as important determinants of identity formation. Stott et al.’s (2012) longitudinal study attempted to capture the identity of incoming students and track its development during their studies and its impact on graduate employment. As Daniels and

Booker (2014) acknowledge, although Stott et al. found that university years allow for experimentation with one's identity, students are not necessarily being taught the processes of how to self-assess and develop it during their studies. The importance of students understanding and being involved in shaping their identity, as well as reflecting on this, is echoed by others (Lairio et al. 2013; Lounsbury et al. 2005). Allen-Collinson and Brown (2012) and Reay et al. (2009) also empirically examine the formation of graduate identity but in minority groups where student's self-conceptualisation may be largely determined by their background characteristics.

Method

Participants

The demographic, study and work characteristics of the participating sample ($n=80,891$) are presented in Table 1. Any sub-group entries not totalling 80,891 can be attributed to missing data for that particular characteristic. The sample includes those graduating with ($n=6097$) and without ($n=74794$) honours from Bachelor programs provided by Australian HE providers. Completion with honours, similar to the US, indicates the completion of a research component. The five discipline areas were created through merging existing fields of education based on perceived similarity and alliance. The attended HE provider was categorised into Group of Eight (Go8) and non-Go8 groupings, the former synonymous with the UK's Russell Group and comprising eight elite and research intensive 'sandstone' universities. The sample is considered sufficiently representative of the Bachelor graduate population of 2012, broadly aligning with award course completions by field of education and age (Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education [DIICSRTE] 2012).

[Insert Table 1]

Instrument

The Australian Graduate Survey (AGS), administered by GCA, gathers data on those recently graduating from courses offered by Australian HE colleges and universities. It is a national tool and a multidimensional measure of graduate learning experience and employment outcomes. For those completing Bachelor degrees, it comprises the Graduate Destination Survey (GDS) which gathers data on job attainment, job seeking behaviour and a range of demographic, study and work characteristics; and the Course Experience Questionnaire (CEQ) which examines graduate perceptions of the quality of their course experience. This explores the areas of teaching, generic skill development, clarity of goals and expectations, appropriateness of workload, suitability of assessment, intellectual motivation, availability of student support, development of graduate qualities, learning resources, learning community and overall satisfaction with the course experience. Teaching quality, generic skill development and overall course satisfaction are core to the CEQ, the other eight being optional to individual providers. Participants must indicate their level of agreement, using a five-point Likert scale ranging from 'strongly disagree' to 'strongly agree', for items relating to the different areas. Participants must also indicate, using a four point scale of importance comprising 'formal requirement', 'important', 'somewhat important' and 'not important', the importance of their qualification, major field of education and other skills and knowledge acquired during their course to employment in their main job. They are given the opportunity to select a fifth 'don't know' category which has not been included in the analysis.

Procedures

The AGS is distributed to Bachelor graduates by individual HE providers via email, mail, telephone or online means. It is completed in two cycles, dependant on the time of graduation. In 2012, the combined GDS and CEQ survey instrument was distributed to 241,074 recent graduates of coursework degree programs from 51 HE providers. A 55.17% response rate was achieved; individual provider response rates ranged from 38.4 to 72.1% (GCA 2013b). Of these respondents, 80,891 were graduates of Bachelor degree program and Bachelor degree (Honours) programs.

Analysis

Descriptive analysis was used to investigate the importance of generic skill development to post-graduation employment relative to degree qualification and field of study. Analysis of Variance (ANOVA) ($\alpha=.05$) was used to identify demographic and work characteristics which may influence importance ratings among new graduates. To evaluate the development of generic skills, the initial sample ($n=80,891$) was reduced to 77,770 to remove those cases which did not rate one or more of the six generic skill items. Factor analysis, using maximum likelihood, indicated the six generic skill items loaded cleanly onto one factor with loadings ranging from .549 to .771. A Cronbach alpha score of .849 confirmed reliability and supports the six items combining to form a sound measure of the generic skills construct.

Removal of missing ratings for graduate qualities resulted in a sample reduction to 46,979, more extreme given the evaluation of graduate qualities is an optional component of the CEQ. One factor also emerged with loading values ranging from .666 to .751. The Cronbach alpha score of .853 confirmed the reliability of the items measuring the graduate

qualities construct. Based on these results, an equally-weighted average composite rating was created for the generic skill development items and the graduate qualities items. Skill and graduate qualities development were assessed using descriptive analysis in SPSS and a series of Multivariate Analysis of Variance (MANOVA) ($\alpha=.05$) was conducted to detect variations in development ratings across a range of demographic and study characteristics. Significant interactions were further explored using univariate ANOVAs with a Bonferroni correction ($\alpha=.007$).

Results

Perceived importance of generic skills to post-graduation employment

The importance of generic skills to post-graduation employment, relative to qualification and chosen field of education, was examined for the entire sample. The distribution of ratings across the four categories of importance, and the mean rating and standard deviation, are presented in Table 2. Results indicate a considerably higher proportion of new graduates consider the Bachelor degree qualification to be a ‘formal requirement’ to their current main job than both the field of education and other skills and knowledge acquired during their course. Although a significantly lower percentage of graduates consider generic skills to be a ‘formal requirement’, this was counterbalanced by a relatively high proportion considering it ‘important’. Combining the ‘important’ and ‘formal requirement’ ratings produced very similar agreement percentages across generic skills, qualification and field of study. Further, only 19.2% of Bachelor graduates felt generic skills were ‘not important’ in their current job, in comparison with 27.7% and 27.9% for qualification and field of study respectively.

[Insert Table 2]

Significant variations in skill importance ratings

ANOVA was used to explore variations in the skill importance ratings for a range of demographic and work characteristics; results are presented in Table 3. Independent sample *t*-tests ($\alpha=.05$) indicated that females assigned greater importance than males to generic skills for their current job, aligning with previous studies (Jackson, 2013b). Tukey post-hoc analysis revealed a consistent age effect with younger graduates, those aged less than 29 years, assigning significantly less importance to generic skills than older graduates up to those aged 55 and above. There appears to be little difference in perceived importance between the 30 to 39 and 40 to 54 year age groups.

Interestingly, those enrolled as international students during their Australian degree assigned significantly less importance to skills than domestic graduates. Those working in the public sector assigned significantly higher levels of importance ($p=.000$) to generic skills than those working in the private and not-for-profit (NFP) sectors. Graduates in NFPs assigned more importance than those working in the private sector ($p=.000$). There was a clear effect for organisation size with graduates working in smaller organisations assigning less importance to skills in their current role. There were also significant variations in the perceived importance of skills by occupation type. Professionals assigned significantly higher importance ratings than all other occupation types, followed by Managers/Administrators, the Clerical grouping then 'Others'. Post-hoc analysis revealed a rich set of variations by employer main business with graduates in Health assigned the highest importance to skills, followed by those in Education then Mining and Resources. Graduates in Wholesale/Transport/Storage and Retail and Services assigned the least importance to skills.

[Insert Table 3]

Development of generic skills and graduate qualities in recent Bachelor graduates

The distribution of ratings for the generic skill and graduate quality items are presented in Table 4. Findings indicate that, overall, graduates perceive generic skill development to be strong in HE. The development of analytic skills achieved the highest mean rating, followed closely by written communication. Fine-tuning graduate ability to work as a team member achieved a marginally lower mean score than the other generic skills. Further, team-working achieved the lowest percentage of agreement score (agree plus strongly agree) of 72% across the six skills and a considerably higher disagreement percentage of 9.9% (disagree plus strongly disagree) relative to the other five skills.

[Insert Table 4]

Ratings for graduate qualities, in terms of both averages and agreement scales, were favourable for four of the six items. These relate to the course experience facilitating a broad overview of disciplinary knowledge; learning to apply principles in new contexts; valuable learning for the future; and valuing perspectives other than one's own. The area in which most new graduates agreed, and fewest disagreed, was their course experience encouraging them to value perspectives other than their own. Respondents rated stimulating enthusiasm for learning relatively poorly and it achieved the least favourable results in terms of mean rating and agreement percentages. Here, over 10% of graduates disagreed this was well developed in their courses and only 70% were in agreement (at least 10% lower than the other items). Graduate confidence in investigating new ideas also produced a lower mean rating and lower agreement scores than all other items, with the exception of lifelong learning.

Significant variations in generic skill development ratings

Significant MANOVA interactions were recorded for gender, $\lambda=.987$, $F(6, 77749)=170.977$, $p=.000$, partial $\eta^2=.013$; age group, $\lambda=.976$, $F(24, 271221.111)=78.201$, $p=.000$, partial $\eta^2=.006$; study mode, $\lambda=.976$, $F(12, 155100)=157.203$, $p=.000$, partial $\eta^2=.012$; residency $\lambda=.990$, $F(6, 77763)=135.568$, $p=.000$, partial $\eta^2=.010$; institution, $\lambda=.983$, $F(6, 55262)=160.734$, $p=.000$, partial $\eta^2=.017$; and discipline, $\lambda=.945$, $F(24, 271186.225)=186.018$, $p=.000$, partial $\eta^2=.014$. Significant univariate ANOVAs, at Bonferroni-adjusted α levels of .008, are summarised in Table 5.

[Insert Table 5]

Males assigned a higher mean rating for analytic and problem-solving skills and confidence in tackling unfamiliar problems. Conversely, females – on average – perceived written communication and planning skills to be developed better than males. Tukey post-hoc analysis indicated that younger graduates, those aged under 29 years, believed team-working skills were better developed than their older counterparts. For analytic skills, confidence and written communication, the age effect was the opposite with mature graduates broadly perceiving development to be better than younger graduates. The only significant interaction effect for planning was those aged under 25 assigning higher ratings than the marginally older 25-29 age bracket. For team-working, development ratings were significantly higher for those studying on-campus while mixed-mode graduates assigned higher ratings than those studying off-campus. A similar trend was recorded for problem-solving skills although there was no significant difference between off-campus and mixed-mode graduates. Conversely, off-campus students assigned higher development ratings than both on-campus and mixed-mode for both written communication and confidence. There was only a significant interaction effect between on-campus and mixed-mode graduates for written communication,

the latter assigning higher ratings. Graduates who studied as Australian domestic students rated the development of all skills higher than those who were an overseas resident at the time of enrolment, apart from team-working. There were mixed results for differences by awarding institutions with Go8 universities achieving higher mean development ratings for analytic and problem-solving skills and lower ratings for team-working and written communication.

There were some common themes in the wealth of variations by discipline for the six skills. Those in the Architecture, Agriculture, Building, Surveying and Engineering grouping assigned relatively high ratings to team-working, analytic and problem-solving skills yet rated written communication and planning poorly. Graduates of Arts, Humanities, Social Science and Education programs rated the development of team-working and problem-solving skills significantly lower than all other groupings and the development of written communication and planning skills as higher than all others. Overall, Business graduates rated the development of each skill as consistently lower than most of the other disciplines, other than written communication. There were mixed results for Medical graduates with both significantly higher and lower skill ratings appearing for each skill against the other disciplines and no clear trend emerging in strengths, or weaknesses, in the development of certain skills. Those graduating from Other Science programs rated analytic, problem-solving and confidence skills relatively high and there were mixed results for the remaining skills.

Significant variations in graduate quality development ratings

Significant MANOVA interactions were recorded for gender, $\lambda=.992$, $F(6, 46961)=63.007$, $p=.000$, partial $\eta^2=.008$; age group, $\lambda=.988$, $F(24, 163818.100)=24.069$, $p=.000$, partial $\eta^2=.003$; study mode, $\lambda=.997$, $F(12, 93896)=12.188$, $p=.000$, partial $\eta^2=.002$;

residency $\lambda=.992$, $F(6, 46972)=62.659$, $p=.000$, partial $\eta^2=.008$; institution, $\lambda=.994$, $F(6, 33152)=31.234$, $p=.000$, partial $\eta^2=.006$; and discipline, $\lambda=.961$, $F(24, 163839.032)=78.554$, $p=.000$, partial $\eta^2=.010$. There were no instances of an insignificant multivariate F for any examined characteristics. Significant univariate ANOVAs, at Bonferroni-adjusted α levels of .008, are summarised in Table 6.

[Insert Table 6]

Females assigned a higher mean rating to discipline overview, enthusiasm, application, learning value and broadening perspectives than males. There was also a clear and consistent effect for age with younger graduates assigning lower ratings for all six measures of graduate qualities than those aged up to the 55 year old grouping after which there was no significant effect. Interestingly, graduates who studied by distance learning assigned higher ratings than on-campus and mixed-mode for all the measures of graduate qualities, other than valuing perspectives beyond their own. Extending this trend of positive results for those studying online, mixed-mode graduates rated development more highly than those studying on-campus for enthusiasm, learning value and broadening perspectives.

Domestic Australian graduates rated all six graduate qualities more highly than those who were international students at the period of enrolment, echoing the more favourable perceptions of generic skill development discussed earlier. Variations for awarding institutions produced mixed results with those graduating from Go8 institutions recording higher ratings for disciplinary overview, enthusiasm and broadening perspectives and a lower rating for application. Variations by discipline produced very mixed results across the different elements of graduate qualities. Overall, those in the Architecture grouping assigned rated development lower than in the other disciplines, particularly Arts, Medicine and Other

Science. Graduates in the Arts grouping achieved consistently higher ratings for the majority of the items, demonstrating positive trends in identity formation. The poorest performer was the Business grouping with relatively weak ratings in most of the graduate qualities measures. There were mixed results for the Medicine and Other Science groupings which had higher ratings in some measures and lower in others with no clear and consistent trends noted.

Discussion

Importance of generic skills

Graduates appear to be engaging with the importance of generic skills to post-graduation employment although this is less apparent for males and younger graduates. Lower importance ratings were also recorded for graduates based in smaller organisations, problematic given rising trends in small and medium businesses employing graduates (Jensen and Higgins 2009). Skill importance increasing with organisation size breaches conventional thinking that smaller businesses require graduates who are ‘jack of all trades’ and competent in the full spectrum of generic skills. Rationale may be the emergence of flatter and more dynamic organisational structures which require graduates to interact and work productively with a diverse workforce and different levels of seniority, enacting a full range of communication, team-working and planning skills and confidence.

Stronger perception of skill importance among domestic graduates is a positive result. While generic skills may be growing in importance in China and India, from which a significant proportion of Australia’s international students originate (Healy 2009), it is likely there is a lag in the implementation of skill policies compared with more advanced economies. Greater skill importance among those working in Professional and Managerial occupations aligns with our understanding of the demand of their roles; working productively

with others, self-confidence and demonstrating a high level of problem-solving and analytical prowess all critical to effective performance. Relatively high importance ratings reflect the ongoing focus on strong generic skill requirements in new Medical practitioners (Murdoch-Eaton and Whittle 2012).

Ambivalence among certain groups on the importance of generic skills to employment raises concerns given the extensive media and government attention to upskilling the nation's workforce and HE's ongoing efforts to embed skill development in undergraduate education. A lack of acknowledgement of the need to master a broad range of generic skills among certain groups may aggravate prevalent graduate skill gaps and jeopardise the health and sustenance of any advanced economy. However, any negative connotations arising among undergraduates may be counteracted by documented resistance to developing these skills in higher education. Those challenging the generic skills agenda argue it detracts from the sector's overarching importance of developing disciplinary expertise and places additional strain on already under-resourced academics (see Jackson 2012).

Skill development

Drawing on human capital theory, evidence suggests individuals with stronger generic skills have higher levels of perceived employability (Wittekind et al. 2010) and are considered more able to apply their technical expertise in the workplace. It may therefore be assumed that skill mastery will enhance workplace performance and the nation's capacity for innovation and global competitiveness. Critiques of human capital theory (for a useful review see, for example, Crook et al. 2011) should, however, be considered when interpreting this study's findings. Graduates largely believe generic skills are well developed in undergraduate programs. Given significant evidence of industry dissatisfaction with certain generic skills,

this study highlights the need to investigate the precise nature and reasons behind this misalignment. It may be attributed to graduate inability to successfully transfer their acquired skills to the workplace, despite mastery in the classroom setting. Skill transfer is enhanced when learning and assessment is authentic; incorporates reflection on industry practice (Burke and Hutchins 2007) and highlights the relevance of targeted skills (Kirwan 2009) and; work-integrated learning – such as practicums and placements – considered invaluable here. Findings show team-working skills are poorly developed in comparison to others. Given their declared importance by graduate employers (Australian Association of Graduate Employers 2012), this raises concerns and prompts a review of current pedagogy.

Variations by gender and age confirm differences reported in previous studies (Wilton 2011). They highlight to educators the differing perceptions among groups of how well certain skills are developed relative to others and the need to carefully consider the student cohort when designing the content, structure and design of units or programs addressing generic skill outcomes. Variations by study mode for both team-working and problem solving also highlight the need for pedagogical review for off-campus delivery. Effective methods for nurturing team-working skills – such as small group activities, scenario-based learning and role plays - is far easier to implement in a face-to-face environment, would explain these results. New initiatives, such as MOOCs [Massive Open Online Courses], may have further implications for the successful development of these skills, and others, in off-campus mode. Elevated development ratings for written communication among off-campus graduates makes sense given there is more reliance on written correspondence among class peers and lecturers than in the face-to-face environment. Documented difficulties in developing team-working skills in environments with both international and domestic students – due to language and cultural barriers – may augment the relatively low

development ratings for team-working by those studying as international students. Less favourable ratings for the other skills may be due to a lack of understanding of their precise importance and role and how they relate to working practices in their home country. These findings contravene Keneley and Jackling's (2011) study which found Asian students perceived their Accounting studies as developing generic skills better than their domestic counterparts. Notably, international students tend to report lower levels of competence in generic skills than domestic graduates (GCA 2008; Jackson 2012).

In regard to the rich set of variations by discipline, industry expectations in the relevant field may influence graduate skill development ratings. For example, high expectations among corporate employers, considered unrealistic by some (Cornford 2005), may explain the relatively low skill development ratings among Business graduates. These disparities may be aggravated further by variations in the labour market whereby softer labour markets and intense competition for graduate positions in certain professions may produce lower ratings of perceived skill development during university years. Further, variations in overall course experience across the different discipline groupings may also impact on skill development ratings.

Variations by Go8/non-Go8 status aligns with the more vocational or newer universities focusing on the development of non-cognitive skills – those beyond problem solving, analytical and critical thinking – in order to respond effectively to the demands of graduate employers and for their graduates to compete in an increasingly soft labour market. There is documented evidence that universities are allocating significantly more resources to the development of the 'softer' skills with little positive impact on employment outcomes (see Bourner et al. 2011). Business undergraduate programs fared the worst in regards to skill

development. Unfortunately, this aligns with evidence to suggest new Business graduates lack many of the generic skills considered essential for effective workplace performance (BIHECC 2007; Jackson and Chapman 2012), urging education practitioners to research, review and implement principles for best practice.

Identity formation

The importance of undergraduates understanding self-concept and developing their identity during their studies is reiterated by many, including Trede and McEwan (2012) and Chickering and Reisser (1993) who argue it will allow them to act as professionals, at a graduate level, in wider society. The identified deficiencies in confidence to investigate new ideas and appreciation for continued self-improvement and lifelong learning, both important facets to identity, therefore create unease and prompt pedagogical review. In a collective sense, both are important for the organisational prosperity of graduate employers and have implications for the nation's capacity to innovate, critical for global competitiveness and sustained economic growth. Confidence, broadly aligning with self-efficacy, is – in itself - considered an important predictor of perceived employability (Dacre Pool and Qualter 2013) and academic performance (Lounsbury et al. 2005; Nicholson et al. 2013) and is highly regarded by employers (Lowden et al., 2011). The relatively poor ratings for lifelong learning are also a concern, particularly given its role in skills transfer (Tennant 1999) and the formation of positive graduate identity (Barrie 2004; Department of Education, Employment and Training 2000).

Attending to the formation of a positive graduate identity among male undergraduates requires the attention of educational practitioners and other relevant parties, such as those in career services. It may be the 'jocular' social identity (see Allen-Collinson and Brown 2012)

sometimes adopted by males during university interplays with the very different pre-professional identity of a new graduate to somehow erode perceived development in graduate qualities. Lounsbury et al. (2005) maintain extant literature has consistently found important gender differences for identity yet their study revealed no significant variations in the relationship between sense of identity and academic performance for males and females. It also appears younger undergraduates may need extra support in developing their identity as perceptions indicate they hold current provision in lesser regard. It would make sense that the formation of a positive graduate identity is more likely to occur in mature graduates who have more life and work experience in the six different facets. In essence, the lower ratings among younger graduates may reflect a more turbulent transition from university to the workplace due to their relative lack of experience; augmenting feelings of inadequacy in the extent to which university prepared them for entry into professional life. Aligning with this, the positively perceived formation of graduate identity among those who studied off-campus students may be due to this cohort typically being mature age, carers and/or full-time workers (Bennion et al. 2011) with considerably more life and work experience.

The apparent relative dissatisfaction of overseas residents with skill development and identity formation in Australian undergraduate programs raises concerns given international education is one of Australia's leading exports (Healy 2009; Lane 2013) and further investigation into the disparity is required to inform future curricula content and design. As with generic skills, Business graduates expressed perceptions of weaker development of identity formation than other disciplines. This could be attributed to varying perceptions across professions of what constitutes graduate qualities and how these are demonstrated in graduate roles. Also important may be that certain disciplines attract different types of students and these differences may be fundamental to the process of identity formation. For

example, Tomlinson (2010) argues that certain background characteristics – such as gender and social class – drive individuals to a particular labour market and the same may apply for disposition (relating to identity formation) and course selection.

Conclusion

Findings suggest that graduates acknowledge the importance of generic skills for workplace roles although there are variations in perceived importance across a range of demographic and work characteristics. Continued focus by government, education and industry stakeholders to implement policies for up-skilling undergraduates to ensure sustained organisational and national growth and competitiveness have been realised by new graduates. Findings indicate that, overall, Bachelor graduates perceive generic skill development to be strong in HE, questioning why graduate employers continue to express dissatisfaction with certain skill outcomes in new graduates. Graduates believe the formation of a positive identity, or ‘graduateness’ is being developed in HE although some elements more successfully than others. In particular, there is a need to identify ways to stimulate enthusiasm for further learning among undergraduates. There are certain groups, in particular males, younger graduates and overseas residents, who perceive development to be weaker than others, prompting further exploration and pedagogical review.

This study assists in identifying certain types of graduates, based on demographic, study and work characteristics, which perceive their undergraduate experience as lacking regarding the development of generic skills and positive graduate identity, both critical to work-readiness and job attainment. It aims to ensure an equitable experience for all and enhance the employment outcomes, through the successful development of skills and identity, for all graduates who participate in undergraduate education in an Australian setting.

It highlights areas of undergraduate programs for future review of teaching and learning practices to ensure outcomes are maximised for all types of undergraduates. As with any study, there are limitations. First, only data gathered on the six items relating to graduate qualities and generic skills in the CEQ are used to evaluate skill development in undergraduates. Second, the data is self-reported. This raises concerns for upward response bias (Douglass et al. 2012) and a lack of precision due to the subjective nature of generic skills and their propensity for misinterpretation among stakeholders (see Jackson and Chapman 2012). Third, data is gathered using one measurement method which may therefore be subject to common method variance (Podsakoff et al. 2003). Many (for example, Chan 2009; Conway and Lance 2010) argue self-report data is not always biased and should not be assumed inferior to other forms of datum. Further, there is considerable evidence for construct validity and reliability in the skill development measures which may alleviate concerns in this particular study. Despite these, the study adds value to the status of graduate identity formation and generic skill development in the Australian HE arena. It highlights areas requiring review and improvement, ultimately aiming to enhance graduate work-readiness and employment outcomes.

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Table 1 Summary of sample's demographic, study and work characteristics

Characteristic	Sub-group	<i>n</i> =80,891	
		<i>n</i>	Valid %
Gender	Male	32083	39.7
	Female	48793	60.3
Age	Less than 24 years	55617	68.8
	25 - 29 years	13684	16.9
	30 - 39 years	6324	7.8
	40 – 54 years	4458	5.5
	55 years and above	792	1.0
Attendance status	Mainly full-time	70189	87.1
	Mainly part-time	10435	12.9
Study mode	Internal (on-campus)	68760	85.3
	External (off-campus)	4890	6.0
	Mixed mode	7005	8.7
Residency status	Australian	66183	81.9
	International	14628	18.1
Discipline	Agriculture, Building, Engineering and Surveying	8354	10.3
	Arts, Humanities, Social Sciences and Education	24391	30.2
	Business, Accounting, Economics and Law	23974	29.6
	Medical and Health Science	13182	16.3
	Other Science	10965	13.6
Institution type	Group of Eight (Go8)	24048	41.8
	Non-Go8	33490	58.2
Employment status	In full-time work	34911	43.9
	In part-time work	25626	32.3
	Not working	18934	23.8
Sector of employment	Public	18714	31.7
	Private	37200	62.9
	Not-for-profit	3207	5.4
Organisation size	Small and medium (2 – 99 employees)	21254	35.8
	Large (100 and above employees)	34027	57.3
	Don't know	4101	6.9
Occupation type	Manager and Administrator	3148	3.9
	Professional	31519	39.0
	Clerical/Service/Sales	20266	25.1
	Other: Technician, Trade, Manual Worker, Other	1347	32.0
Employer main business	Wholesale, transport/storage	771	1.3
	Mining, resources, electricity, gas and water and agriculture, forestry, farming and fishing	1810	3.1
	Manufacturing	1550	2.6
	Government	3284	5.6
	Construction and maintenance	2012	3.4
	Retail and services	25415	43.0
	Information and communication	1592	2.7
	Business	2169	3.7
	Education	8478	14.3
	Health	12022	20.3

Table 2 Importance of skill development to post-graduation employment

	Not important		Somewhat important		Important		Formal requirement		<i>M</i>	<i>SD</i>
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%		
Generic skills	11036	19.2	12043	20.9	24536	42.7	9894	17.2	2.58	.986
Qualification	16100	27.7	7613	13.1	11125	19.2	23236	40.0	2.71	1.248
Field of study	16081	27.9	9010	15.6	16209	28.1	16288	28.3	2.57	1.170

Table 3 Analysis of variance in skill importance ratings by demographic and work characteristics

Characteristic	<i>df</i>	<i>MS</i>	<i>F</i>	<i>p</i>-value	η^2
Gender	1	155.868	160.851	.000	.003
Age group	4	123.047	127.745	.000	.009
Residency	1	5.197	5.348	.021	.000
Sector	2	1454.820	1582.783	.000	.053
Organisation size	3	195.878	203.710	.000	.011
Occupational type	3	3983.348	5214.280	.000	.214
Employer main business	9	718.539	837.967	.000	.117

Table 4 Skill development and graduate quality ratings by Bachelor graduates

Item	Strongly disagree		Disagree		Neither		Agree		Strongly agree		Mean	SD
	N	%	N	%	N	%	N	%	N	%		
The course helped me develop my ability to work as a team member	1641	2.1	6099	7.8	14042	18.1	40250	51.8	15738	20.2	3.80	.920
The course sharpened my analytic skills	920	1.2	2554	3.3	9423	12.1	42390	54.5	22483	28.9	4.07	.802
The course developed my problem-solving skills	953	1.2	2822	3.6	10809	13.9	44861	57.7	18325	23.6	3.99	.794
The course improved my skills in written communication	1280	1.6	3695	4.8	9482	12.2	39769	51.1	23544	30.3	4.04	.873
As a result of my course, I feel confident about tackling unfamiliar problems	1097	1.4	3556	4.6	14922	19.2	42758	55.0	15437	19.8	3.87	.827
My course helped me to develop the ability to plan my own work	1058	1.4	2998	3.9	10809	13.9	44594	57.3	18311	23.5	3.98	.807
<i>Skills composite</i>											3.96	.633
The course provided me with a broad overview of my field of knowledge	684	1.4	1876	4.0	4933	10.4	27483	58.0	12407	26.2	4.04	.808
The course developed my confidence to investigate new ideas	695	1.5	2371	5.0	8569	18.1	25576	54.0	10185	21.5	3.89	.846
University stimulated my enthusiasm for further learning	1353	2.9	3655	7.7	8776	18.5	22682	47.9	10921	23.0	3.81	.971
I learned to apply principles from this course to new situations	580	1.2	1649	3.5	6435	13.6	28035	59.2	10663	22.2	3.98	.781
I consider what I learned valuable for my future	677	1.4	1243	2.6	4343	9.2	23889	50.4	17211	36.3	4.18	.811
My university experience encouraged me to value perspectives other than my own	624	1.3	1400	3.0	6848	14.5	26899	56.8	11577	24.5	4.0	.791
<i>Graduate qualities composite</i>											3.98	.635

Table 5 Analysis of variance in skill development ratings by demographic and study characteristics

Characteristic	Skill	df	MS	F	p-value	η^2
Gender	Analytic	1	23.794	36.990	.000	.000
	Problem-solving	1	66.690	106.029	.000	.001
	Written communication	1	213.898	281.900	.000	.004
	Confidence	1	41.183	60.252	.000	.001
	Planning	1	36.879	56.727	.000	.001
Age	Team-working	4	144.582	172.189	.000	.009
	Analytic	4	19.318	30.063	.000	.002
	Written communication	4	59.345	78.239	.000	.004
	Confidence	4	21.993	32.202	.000	.002
	Planning	4	4.299	6.609	.000	.000
Study mode	Team-working	2	487.816	584.400	.000	.015
	Problem-solving	2	4.224	6.708	.001	.000
	Written communication	2	40.481	53.225	.000	.001
	Confidence	2	4.556	6.661	.001	.000
Residency status	Team-working	1	142.982	169.135	.000	.002
	Analytic	1	158.382	246.850	.000	.003
	Problem-solving	1	8.778	13.937	.000	.000
	Written communication	1	148.146	195.025	.000	.003
	Confidence	1	33.313	48.728	.000	.001
	Planning	1	28.656	44.068	.000	.001
Institution	Team-working	48	152.258	179.517	.000	.003
	Analytic	48	182.507	288.502	.000	.005
	Problem-solving	48	25.943	41.397	.000	.001
	Written communication	48	37.810	48.655	.000	.001
Discipline	Team-working	4	204.304	244.129	.000	.012
	Analytic	4	58.147	90.747	.000	.005
	Problem-solving	4	86.156	137.732	.000	.007
	Written communication	4	190.705	253.676	.000	.013
	Confidence	4	14.595	21.355	.000	.001
	Planning	4	25.357	39.331	.000	.002

Table 6 Analysis of variance in graduate quality ratings by demographic and study characteristics

Characteristic	Skill	df	MS	F	p-value	η^2
Gender	Discipline overview	1	8.226	12.607	.000	.000
	Enthusiasm	1	118.855	126.404	.000	.003
	Application	1	15.459	25.381	.000	.001
	Learning value	1	26.447	40.291	.000	.001
	Broaden perspectives	1	159.082	255.602	.000	.005
Age	Discipline overview	4	14.895	22.865	.000	.002
	Confidence	4	44.788	62.978	.000	.005
	Enthusiasm	4	86.130	92.065	.000	.008
	Application	4	21.632	35.603	.000	.003
	Learning value	4	35.118	53.696	.000	.005
	Broaden perspectives	4	9.943	15.910	.000	.001
Study mode	Discipline overview	2	3.794	5.813	.003	.000
	Confidence	2	8.910	5.813	.003	.001
	Enthusiasm	2	24.308	25.805	.000	.001
	Application	2	13.028	21.390	.000	.002
	Learning value	2	23.245	35.419	.000	.002
	Broaden perspectives	2	3.897	6.228	.002	.000
Residency status	Discipline overview	1	48.592	74.564	.000	.002
	Confidence	1	75.521	105.849	.000	.002
	Enthusiasm	1	50.754	53.892	.000	.001
	Application	1	120.962	199.317	.000	.004
	Learning value	1	217.067	332.660	.000	.007
	Broaden perspectives	1	22.924	36.658	.000	.001
Institution	Discipline overview	1	23.543	34.466	.000	.001
	Enthusiasm	1	39.336	41.702	.000	.001
	Application	1	12.319	20.711	.000	.001
	Broaden perspectives	1	15.783	25.671	.000	.001
Discipline	Discipline overview	4	50.509	77.894	.000	.007
	Confidence	4	129.536	183.956	.000	.015
	Enthusiasm	4	154.127	165.762	.000	.014
	Application	4	23.578	38.811	.000	.003
	Learning value	4	54.882	84.105	.000	.007
	Broaden perspectives	4	80.105	129.398	.000	.011