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Business graduate employability – where are we going wrong?

Abstract

Persistent gaps in certain non-technical skills in business graduates continue to impact on organisational performance and global competitiveness. Despite business school's best efforts in developing non-technical skills, widely acknowledged as fundamental to graduate employability, there has been considerably less attention to measuring skill outcomes and even less on their subsequent transfer to the workplace. It appears stakeholders are assuming transfer occurs automatically in graduates, neglecting the influence of learning program, learner and workplace characteristics on this complex process and its potential impact on graduate employability.

This paper unpacks the concept of transfer and proposes a model of graduate employability which incorporates the process. Measures for empirical analysis are discussed. Testing the model would indicate the extent to which transfer occurs and highlight collaborative strategies for employers, universities and graduates in nurturing learning and workplace environments in which transfer may flourish, taking us one step closer to the elusive 'work-ready' graduate.

Keywords

Employability; generic skills; graduate attributes; business; transfer

Introduction

In response to industry's call for work-ready graduates, universities are consumed with developing and embedding initiatives for enhancing graduate employability. The precise meaning of graduate employability, defined as "the potential a graduate has for obtaining, and succeeding in, graduate-level positions" (Yorke & Knight, 2004: p. 4) has attracted considerable debate and extensive modelling (Lees, 2002; Dacre Pool & Sewell, 2007). Employability encompasses technical and non-technical skills and knowledge, career management skills and life and work experience (Dacre Pool & Sewell). Business schools cater to these different facets of graduate employability by embedding career management, 'work integrated learning' [WIL] opportunities and non-technical skill development into undergraduate curriculum.

This paper focuses on the contribution of non-technical skills, described by Goleman (1998) as "prime qualities that make and keep us employable" (p. 4), to graduate employability. Non-technical skills, otherwise referred to as key, professional, core or generic skills, encompass those cognitive, social, self-management and administrative skills, capabilities and attributes which graduates require to apply their disciplinary expertise in the workplace and are widely considered as fundamental to graduate employability (Yorke & Knight, 2004). The development of these skills, however, forms only the first stage in achieving graduate employability.

The second stage is the successful transfer of non-technical skills to the workplace. Non-technical skills are largely assumed to be generic, meaning once acquired at university they are easily applied across different contexts such as the workplace. This may explain why the funding, effort and institutional resources for addressing graduate employability focus almost entirely on the first stage of developing non-technical skills and not empirically examining and modelling their subsequent transfer to the workplace. This second stage to achieving graduate employability is not necessarily overlooked by stakeholders but simply, and maybe incorrectly, assumed as occurring automatically (Leveson, 2000). The practice of interchanging employability and non-technical skills confirms stakeholder assume they are one and the same thing, successfully developing non-technical skills equating to graduate employability with little thought to the potentially missing link of learning transfer.

The aims of this paper are two-fold. The first is to conceptually examine learning transfer to better understand how it may impact on graduate employability. The second is to propose a model of graduate employability which incorporates learning transfer from university to the workplace. Empirically testing the model will highlight to what extent, and how, transfer influences employability and strategies for stakeholders in enhancing graduate transfer. The paper first provides a background to the development of non-technical skills in business undergraduates, identifying areas in which business schools appear to be failing. A model of graduate employability incorporating transfer is then presented and discussed.

Background

Business schools and non-technical skill development

Although one cannot assume complete unanimity among employers, literature suggests broad consensus on those skills considered important in business graduates. Non-technical skills deemed critical for work-readiness are summarised in Table 1. Each of the listed skills has a

number of constituent, operational behaviours which are deemed assessable in university and workplace settings.

Table 1. Non-technical skills required in business graduates (adapted from Jackson & Chapman, 2011)

Skill	Behaviour
Core business skills	Numeracy; technology
Critical thinking	Pattern recognition and conceptualisation; evaluation
Problem solving	Analytical / convergent reasoning; diagnosing
Decision management	Lateral thinking / creativity; information management; decision making
Political skills	Influencing others; conflict resolution
Working with others	Task collaboration; team working; social intelligence; cultural and diversity management
Oral communication	Verbal communication; giving and receiving feedback
Personal ethics	Personal ethics
Confidence	Self-efficacy
Self-awareness	Meta-cognition; lifelong learning
Self-discipline	Self-regulation; stress tolerance; work/life balance
Innovation	Entrepreneurship; change management
Leadership	Project management; performance management; meeting management; developing others
Formal communication skills	Public speaking; meeting participation; written communication
Performance	Efficiency; multi-tasking; autonomy
Organisational skills	Goal and task management; time management
Environmental awareness	Organisational awareness; commercial awareness
Professional responsibility	Social responsibility; accountability
Work ethic	Drive; initiative

The importance of non-technical skills for effective graduate workplace performance is undisputed yet the responsibility for their development causes angst among stakeholders in undergraduate education. Employers predominantly believe successfully acquiring these skills remains the responsibility of business schools (Hancock, Howieson, Kavanagh, Kent, Tempone & Segal, 2009) and place considerable effort on clarifying precisely which skills are most required in business graduates. Some educators, however, perceive the pursuit of graduate employability in undergraduate programs, through non-technical skill development, as detracting from the business school's overarching purpose of general learning and developing creativity and inquiry in undergraduates (Starkey & Tempest, 2009).

Despite concerns, recent policies and practices recognise non-technical skills form a critical component of the managerial skill set and increasingly accommodate industry calls for non-technical skill development in business undergraduate programs. This varies across Australian business schools, some embedding outcomes into core curricula, others devising bolt-on programs which specifically address these skills (Business/Higher Education Round Table [BHERT], 2003). Industry's push for non-technical skills in graduates is embodied in the recently developed learning and teaching academic standards for Australian undergraduate degree programs (Australian Learning and Teaching Council [ALTC], 2010a). Standards for business undergraduate programs developed focus heavily on non-technical skills; the five

threshold learning outcomes for Bachelor graduates in Accounting, for example, address communication, teamwork and another self-management (ALTC, 2010b). Pressure to achieve non-technical skill outcomes is amplified further by criteria of relevant accrediting bodies, such as the UK's Quality Assurance Agency for Higher Education (QAA); EQUIS, operated by the European Foundation for Management Development; America's Association to Advance Collegiate Schools of Business [AACSB] and CPA Australia, encompassing non-technical skills.

Documented gaps in non-technical skills

Skill gaps refer to the disparity between industry needs and higher education provision. Non-technical skill outcomes, measured by graduate workplace performance, in graduates in developed economies, such as the UK, US and Australia, appear mixed. Strong evidence for success in working effectively with others (Hancock *et al.*, 2009), personal ethics, core business skills and personal responsibility (Casner-Lotto & Barrington, 2006) is counterbalanced with deficiencies in aspects of leadership and critical thinking (Casner-Lotto & Barrington, 2006; CIHE, 2008; Australian Institute of Management [AIM], 2009), decision management (Council of Industry for Higher Education [CIHE], 2008) and conflict management (Jackson & Chapman, in-press). Meta-cognitive skills are also considered vital for effective learning and transfer (Dacre Pool & Sewell, 2007) yet there is little evidence of strong graduate performance in this area. These areas of weakness form vital elements of managerial skill sets, a major concern as a critical objective of business undergraduate education is to develop tomorrow's leaders (see Wilton, 2008). Poor outcomes in certain skills have attracted global industry condemnation of business school efforts to produce work-ready graduates (Ladyshevsky, 2006; Abraham & Kerns, 2009) yet criticism is rarely accompanied by suggestions for a more collaborative approach to skill development (see Jackson & Chapman).

Faculty's response to industry blame varies. Some respond by challenging industry's seemingly endless demands on higher education institutions, already straining under the pressures of reduced funding (International Association of Universities [IAU], 2010). Others work hard at drawing industry closer through consultative committees and professional learning initiatives (see Lawson, Taylor, Papadopoulos, Fallshaw & Zanko, 2010) such as interactive projects linking industry and higher education (Meredith & Burkle, 2008). The incorporation of WIL is increasingly popular, "generally students and employers consistently perceived that the 'transition out' of university education to the profession was made more seamless by an integration of academic studies and professional work experience" (Blake & Susilawati, 2009: p. 13). Billet (2011) provides significant evidence on the positive impact of WIL and internship opportunities on student learning.

The impact of graduate skill gaps is far-reaching. A misfit between graduate expectations and their ability to perform adequately in the workplace contributes significantly to graduate turnover (Heaton, McCracken & Harrison, 2008) and career progression (Whitelaw, 2010). Slower progress in achieving career milestones may, in turn, lead to premature job migration (Association of Graduate Recruiters [AGR], 2007).

For employers, graduate skill gaps reduce productivity and lead to organisational under-performance. Graduate retention rates in the UK and Australia have improved dramatically since the global financial crisis (AGR, 2010; Australian Association of Graduate Employers [AAGE], 2010) yet this may not indicate future trends. Graduate turnover impacts on

recruitment and training costs, disrupts succession planning strategies and more resource-intensive performance management processes are required for replacement recruits.

Skill gaps cause problems at a macro-economic level. The Business Council of Australia [BCA] (2006) emphasises the role of human capital in nurturing innovation, widely considered the driving force of global competitiveness. Tomorrow's managers must possess the leadership, decision management and critical thinking skills to problem solve and create opportunity through change. Leaders not equipped with these skills are unlikely to achieve the levels of innovation necessary for economies to compete successfully in the global market. The UK's Leitch review laments the impact of inadequate graduate-level skills (HM Treasury, 2006), "they drive growth, facilitate innovation and are crucial for world-class management and leadership" (p. 66). It also acknowledges the need for close collaboration between higher education and industry to successfully develop job-related skills.

A proposed model of graduate employability

A model of graduate employability which incorporates the transfer of non-technical skills, capturing its conceptual complexities yet facilitating empirical testing (Noe, 2000), is presented in Figure 1. It indicates the two-stage contribution of non-technical skill development to graduate employability.

Stage 1

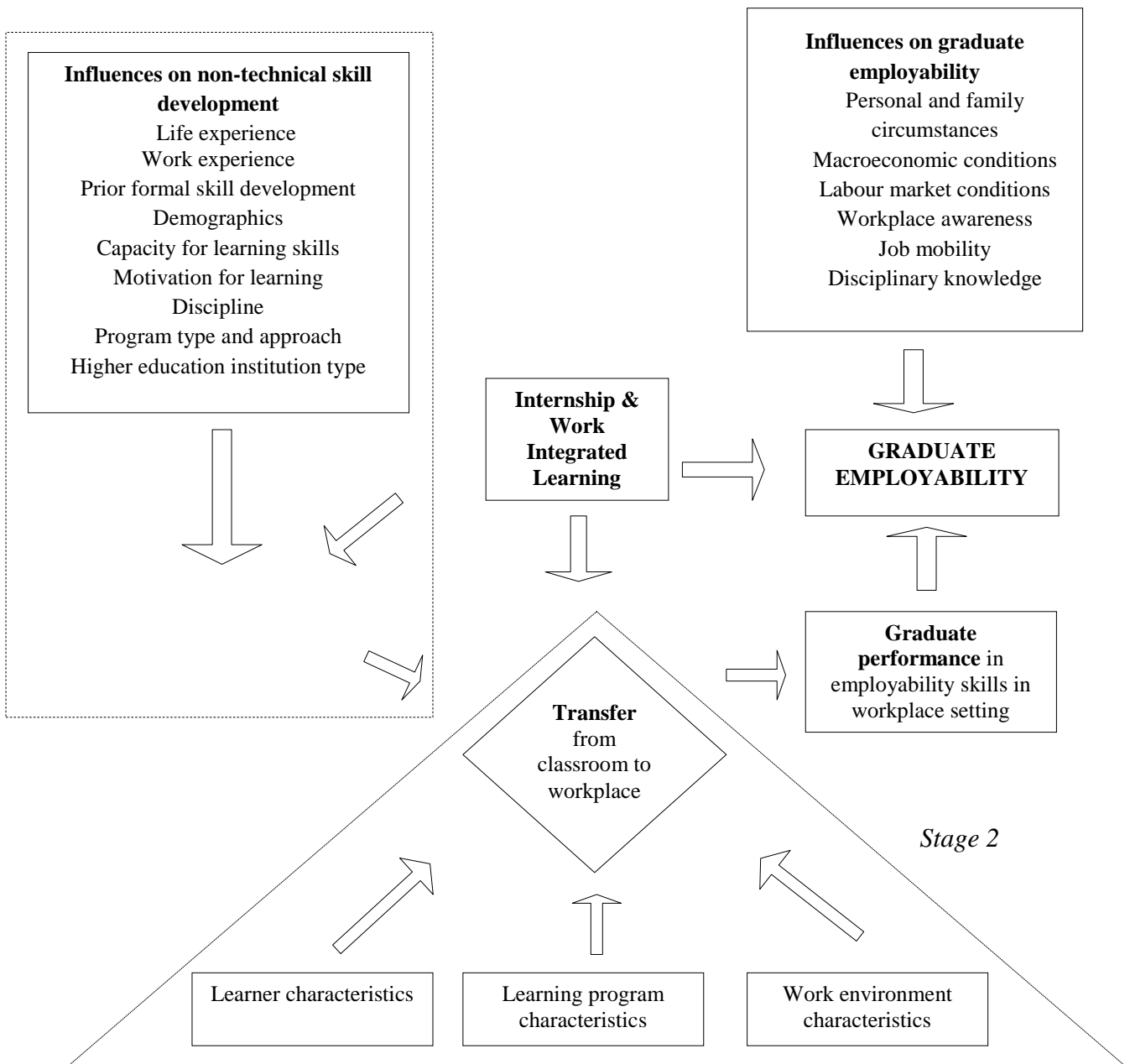


Figure 1. Model of graduate employability incorporating transfer

Stage One: Non-technical skill development

Although learning program type and approach (Ballantine, 2007), WIL opportunities (Freudenberg, Brimble & Cameron, 2011), discipline and institution type (Wilton, 2011) influence non-technical skill development, there are many other influences which lie beyond the doors of the business school. These include activities and relationships outside work and education, referred to as life spheres by Wheeler (2008), and prior formal skill development such as schooling (Smith & Green, 2005). Conventional wisdom suggests certain demographic characteristics, work experience and capacity for learning skills would also influence non-technical skill outcomes in graduates. Motivation, as students recognise the

importance of non-technical skill development for work-readiness, may also impact on outcomes (Nilsson, 2010).

In regard to evaluating skill development, university efforts in embedding and developing non-technical skills in undergraduate curricula appear to far outweigh those in assessing non-technical outcomes, possibly due to documented difficulties in measurement (Halfhill & Nielsen, 2007). Assessing non-technical skills in a university setting is typically achieved through subjective measures such as graduate self-reporting (Halfhill & Nielsen, 2007), peer assessment (Allen & Van der Valden, 2005; Cassidy, 2006) and/or facilitator assessment. Problems associated with self-reporting and peer-assessment (see Allen & Van der Alden, 2005) and ambiguity in the perceived meaning of certain non-technical skills (see Jackson & Chapman, 2011) plague these measures. A more objective approach is curriculum mapping (Oliver, Jones, Tucker & Ferns, 2007) yet this focuses on institutional achievement not candidate ability.

Lawson et al.'s (2011) ongoing ALTC project provides a solid foundation for curriculum mapping which integrates facilitator assessment to provide assurance of learning. Although assurance of learning measures are rarely perfect, 360 degree feedback tools with associated mapping exercises may provide a good starting point from which to determine transfer. Oliver (2011) also provides a solid example of measuring outcomes based on curriculum mapping processes and skill portfolios. Her ALTC project aims to develop standardised rubrics for measuring non-technical skills which are based on skill descriptors from novice to expert levels. Clearly defined levels of achievement in non-technical skills are strongly advocated by Hampson and Junor (2009) who argue a 'competent or not competent' policy is too simplified for tertiary education levels. Combining these rubrics with a skills portfolio will provide educators and industry a means of assessing skill acquisition and learners a benchmark for structuring and articulating their capabilities.

These significant ALTC projects suggest welcome progress in developing systematic approaches to skills assessment, albeit belatedly considering the non-technical skills movement gathered momentum several years ago. Importantly, actively measuring non-technical skill outcomes in graduates serves to highlight their value to students and is therefore likely to enhance their transfer (Yashin-Shaw *et al.*, 2003).

Stage two: Transfer of non-technical skills

Transfer is a complex aspect of learning theory, its conceptualisation and process attracting decades of research. Simple transfer concerns the process of learning a procedure in a controlled environment then repeating it to demonstrate successful learning. Far transfer is the complex process of drawing on skills and knowledge acquired in the learning setting and applying them in a different context (Barnett & Ceci, 2002); the university-workplace transition forming a noteworthy example. The two settings remain culturally and socially removed, meaning "no smooth crossing occurs because of the uniqueness of the two settings" (Candy & Crebert, 1991: p. 571).

Transfer is accepted as being fundamentally important in higher education. Described by Haskell as "the very foundation of learning, thinking and problem solving" (2001: p. xiii), it is considered "the ultimate aim of teaching and learning" (Leberman, McDonald & Doyle, 2006: p. 3). Many, however, believe that only very little far transfer actually occurs (Detterman, 1993; Haskell, 2001). Hakel and Halpern (2005) acknowledge that faculty

lament the difficulties in achieving far transfer yet make little effort to ‘teach for transfer’ and have instead resorted to “expecting it to happen magically” (p. 361). Transfer’s complex nature is illuminated by its numerous theories and difficulties in measurement; possibly explaining faculties’ somewhat grateful acceptance it is a natural phenomenon.

The process of transfer. Reviews of the different theories on transfer (Leberman et al. 2006; Kirwan, 2009) indicate two schools of thought. The first emphasises the role of cognitive processes, such as memory, reflection, association and reconstruction, in the successful transfer of learning from one context to another. Key examples are knowledge reconstruction, information processing and schema theory (see Leberman et al.); Thorndike and Woolworth’s theory of identical elements (1901) and cognitive apprenticeships (Collins, Brown & Newman, 1989). Such theories are outcome-based, concentrating on what is ‘transferred out’ (Mestre, 2005) of the learning context. They focus on precisely how skills and knowledge are acquired, the degree of learning in the original context and how these both impact on transfer. The use of examples, learning with understanding, meta-cognition and the degree of contextualisation in the learning environment are all important to traditional theories on transfer (see Bransford & Schwartz, 1999).

Disillusionment with achievements in far transfer, see Detterman (1993), catalysed the second, more contemporary, school of theories on transfer which focus more on inputs and process than outcomes. Contemporary theories collectively acknowledge that a range of factors, other than cognitive processes, influence how, and the degree to which, transfer occurs. These factors may be affective, social or cultural in nature and may pertain to the original learning context or the environment in which the skills and knowledge are being applied. Bransford and Schwartz’s (1999) ‘preparation for future learning’ was pivotal in the evolution of transfer theory; the focus shifting from what was transferred out to what is transferred in to the transfer situation (Mestre, 2005). Here, transfer is influenced by learner perceptions of the learning and application contexts and a range of social and cultural factors such as their willingness to learn from others, approach to seeking feedback, creative use of resources and persistence in challenging situations. In essence, the better graduates are able to interpret and relate to information in their new context (the workplace), the better they will transfer their acquired skills and knowledge. As stated by Hager and Hodgkinson (2009), “it is more realistic to view transfer as renovation and expansion of previous knowledge via the experience of dealing with new situations in new settings” (p. 620). Other key contributions to the contemporary school are the actor oriented model (Lobato, 2003); socio-technical model (Lave & Wenger, 1991) and fuzzy trace theory (Wolfe, Rayna & Brainerd, 2005).

Factors influencing transfer. Contemporary theories on transfer suggest a range of factors influence learning transfer across different contexts, depicted in Figure 1 within stage two’s triangular area. Literature confirms transfer “is a multi-dimensional process ... mediated by the characteristics of the individual...the learning/training program and the social/cultural contexts” (Leberman *et al.*, 2006: p. 119).

Learner characteristics. Learner understanding of the concept and principles of transfer (Tennant, 1999; Haskell, 2001), termed ‘appreciation of transfer’, and the pre-conceptions and prior learning they bring to the learning situation may influence transfer (Hakel & Halpern, 2005). Certain personal characteristics and attitudes, particularly the propensity for risk-taking (Robinson, 1992), ability (Baldwin & Ford, 1988), learning styles (Mbawo, 1995), job and career attitudes (Kirwan, 2009), and the Big Five personality characteristics (Noe, 2000) are also important. To achieve transfer, learners must want to apply their new learning in the

workplace (Baldwin & Ford, 1988; Broad & Newstrom, 1992). Motivation is strongly linked to personality yet other factors, such as a clear expectation of learning outcomes, a genuine desire for skill mastery, strong self-efficacy and positive career attitudes may augment it further (Kirwan). Learners should also have the mental, emotional and physical resources for devoting to transfer (Holten, Chen & Naquin, 2003).

Learning program characteristics. Regarding program content, similarity in tasks and content between the learning and application settings is considered important (Broad & Newstrom, 1992), such as the sharing of cognitive elements (Anderson, Reder & Simon, 1996). Understanding the theory behind the skills they are learning (Calais, 2006) and strong perceptions of relevance in content among learners may improve transfer (Gregoire, Propp & Poertner, 1998; Kirwan, 2009).

For pedagogy, the use of authentic activities (Tennant, 1999); learning whole tasks rather than component skills in isolation (Anderson *et al.*, 1996); performance feedback, setting learning goals and objectives (Gregoire *et al.*, 1998); collaborative learning, scrutinizing and building on the learning of others; significant opportunities for practice using multiple examples in a controlled environment and with lecturer support (Hakel & Halpern, 2005) and the use of analogies (see Kirwan, 2009) are all considered important. Ladyshevsky (2006) discussed learning strategies based on goal setting, reflective journaling and peer coaching to enhance transfer in postgraduate management programs while Lim (1999) highlighted the need to account for cultural differences through diverse teaching strategies. Finally, student-centred learning encourages active engagement and may improve learning and transfer (Mbawo 1995; Hakel & Halpern).

Nurturing lifelong learning skills, by encouraging students to seek new ways and resources for learning, will greatly improve transfer (Tennant, 1999). Also important is fostering learning with understanding by avoiding rote learning and allowing the learner sufficient time to absorb material (see Barnett & Ceci, 2002). The ‘closer’ the workplace is to the learning environment, the more likely transfer is to occur (Analoui, 1993) although learning should not be too tightly bound to context (see Bransford & Schwartz, 1999). Reflection is also a powerful tool for achieving transfer (Yashin-Shaw, Buckridge, Buckridge & Ferres, 2004) as it will enable learners to recognise differences in application and adjust their responses accordingly (Bransford & Schwartz, 1999). Finally, the characteristics of the trainer may impact on learning transfer (Gregoire *et al.*, 1998).

Workplace characteristics. The actual work environment and learner’s perception of the work environment, such as the extent to which they believe it is supportive, will influence transfer (Baldwin & Ford, 1998). Kirwan (2009) states a broad range of workplace factors combine to form an overall climate for transfer. These include intrinsic and extrinsic rewards for using new knowledge and skills (Kontoghiorghes, 2004), opportunities for practicing newly acquired skills (Baldwin & Ford) and workload, as individuals must have time to develop their reflective skills and experiment with innovation (Clarke, 2002).

If learners recognise similar content in the learning and application contexts, referred to as ‘situational cues’, then transfer may be enhanced (see Tennant, 1999). Detterman (1993) argues “you should teach people exactly what you want them to learn in a situation as close as possible to the one in which the learning will be applied” (p. 17). This is, however, easier for bespoke, corporate training with predictable application contexts than undergraduate programs. The level of managerial and direct supervisory support is also considered crucial to

transfer (Baldwin & Ford, 1998), including feedback on learner efforts to apply learning in the workplace (Clarke, 2002) and post-training support such as coaching, buddy systems and mentoring (McGraw, 1993).

Other factors nurturing transfer are continuous learning and change management culture (Clarke, 2002); establishing a locus of control where graduates have flexibility over achieving outcomes and a sense of ownership over their work (Awoniyi, Griego & Morgan, 2002) and the presence of communities of practice, ability to collaborate and peer support in the workplace (Lave & Wenger, 1991). An example of resistance may be group norms which discourage the application of certain skills (Holten *et al.*, 2003) and the existence of cultural differences, such as language, social, technical and learning differences (Lim & Wentling, 1998).

Kontoghiorghes (2004) argues transfer is directly related to organisational performance. Learner motivation, which in turn influences transfer, is directly related to how conducive the work environment is to high performance. If the learner believes his or her efforts will result in desirable outcomes, the more motivated they are to learn and the more likely they are to transfer (Holten *et al.*, 2003). Work environment factors such as commitment to quality, flat structures and information sharing may therefore indirectly influence transfer through enhancing motivation.

Responsibility for transfer. A close review of factors influencing transfer reveals they could apply equally to the transfer of both technical and non-technical skills and some blurring of the boundaries between learning program and learner characteristics. Figure 2 depicts the shared responsibility of managing influences on transfer across stakeholder groups in business undergraduate education.

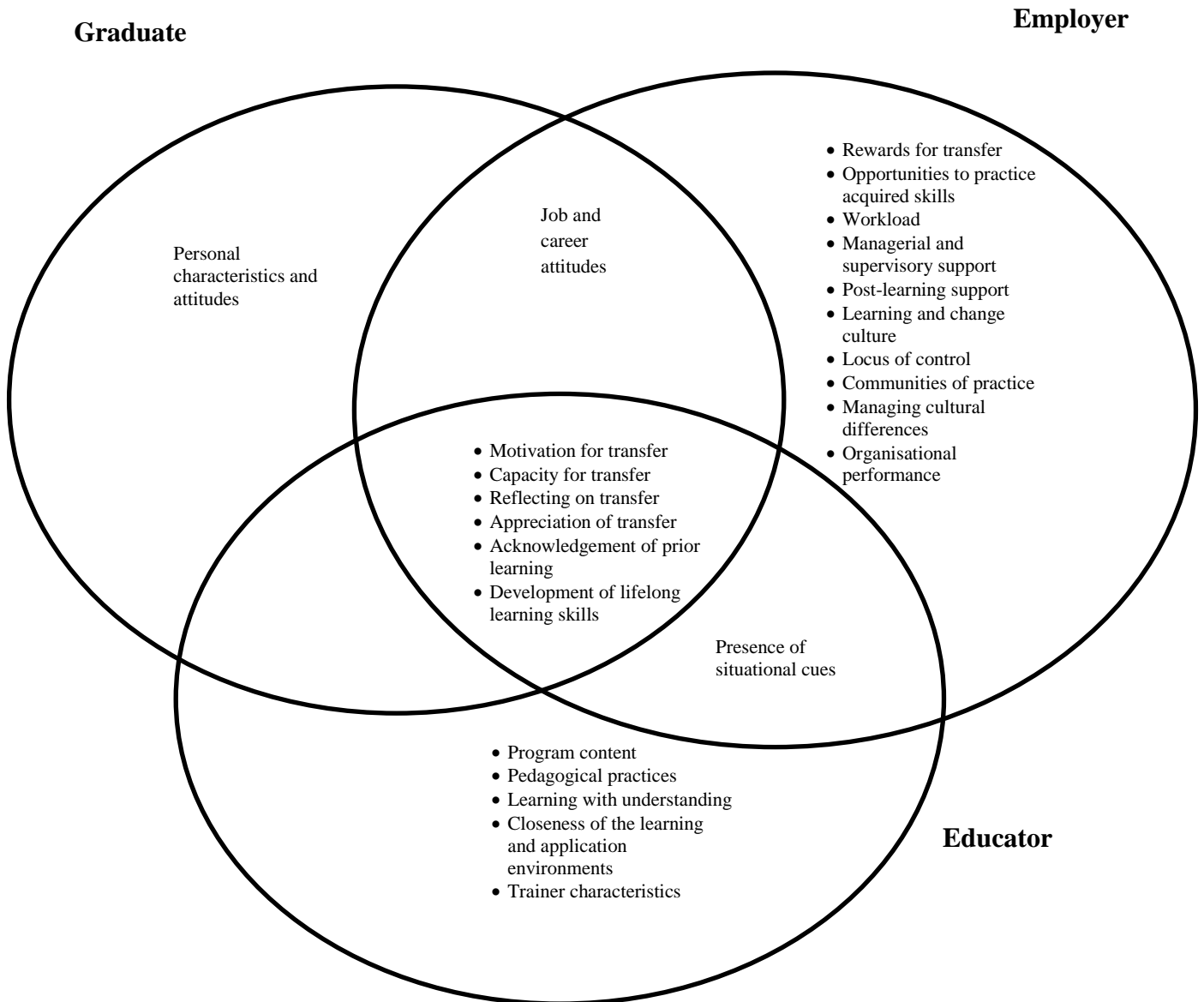


Figure 2. Shared responsibility for graduate transfer

Measuring transfer. The three factors influencing transfer, in addition to variations in the importance of these characteristics across different types of organisations (Holten *et al.*, 2003; McDonnell, Gunnigle & Lavelle, 2010), must be evaluated. Self-reporting, peer and/or facilitator assessment using Likert-type scales are popular for measuring key influences on transfer (Holten *et al.*; Cromwell & Kolb, 2004). Factors may then be modelled using multiple regression techniques (Kontoghiorghes, 2004) or structural equation modelling (Chiaburu & Marinova, 2005).

Problems in measuring the impact of transfer derive primarily from a lack of agreement over its conceptual model (Oates, 1992) and complexities in evaluating the model's elements. Empirical studies on graduate transfer are limited, prominent examples being Ettington and Camp (2002) and Doyle (2006). Existing literature predominantly focuses on corporate training (Kontoghiorghes, 2004; Kirwan, 2009) which is problematic as the application context of acquired skills can be predicted for workplace training whereas for graduates it is far broader and often unknown.

Measurements of graduate performance in employability skills in the workplace, seen emerging from stage two in Figure 1, will assist in gauging transfer although the time elapsed between graduation and workplace assessment is subject to debate (see Doyle, 2004). Current performance measures include self-reporting, peer and/or supervisory assessment or a combination of these methods. Difficulties in capturing responses post-graduation is problematic, a solution may be conducting empirical studies on undergraduates who undertake WIL or internships towards the end of their degree program.

Possible measures could be the time taken to master given skills to an acceptable level of competence in the new environment. In a study of aviation students, Herold, Davis, Fedor and Parsons (2002) argue studying the rate of learning in the application context, what they define as 'time to criterion', is more viable than measuring proficiency upon graduation. Other measures include the reduction in time taken to master different skill levels for particular tasks (Oates, 1992); higher performance levels than that normally achieved by a learner operating in an unfamiliar context and/or undertaking a new task and/or solving problems without specific training (Boud & Garrick, 1999). Empirical studies should require participants, peers and/or supervisors to reflect on graduate performance in certain behaviours and any problems experienced during mastery.

Evaluating graduate employability

As Figure 1 suggests, successfully developing and transferring non-technical skills does not necessarily guarantee employability. Other determinants include graduate ability to market personal assets, personal and family circumstances (Hillage & Pollard, 1998); labour market and macroeconomic conditions (McQuaid & Lindsay, 2005); workplace awareness (Bennett, Dunne & Carre, 1999) and willingness to change jobs (Wittekind, Raeder & Grote, 2009). Traditional measures include employer-based perceptions of performance and, to a lesser extent, studying the relationship between competency and workplace performance in early career managers. An alternative measure is faculty job achievement statistics although this is far removed from the personal nature of employability (Harvey, 2001). The proposed model provides a more holistic measure of graduate employability, capturing its complex and interacting determining forces.

Implications/Conclusions

International efforts at achieving work-readiness have focused on clarifying which industry-relevant non-technical skills in business graduates, incorporating their development in curricula and assessing graduate workplace performance. There has been considerably less attention paid to measuring non-technical skill outcomes at university and even less on the subsequent transfer of acquired skills to the workplace.

It appears stakeholders are assuming graduate transfer occurs naturally yet literature confirms transfer is a highly complex process, influenced by considerable noise generated from certain learning program, learner and workplace characteristics. The responsibility for manipulating these characteristics, and therefore enhancing transfer, is collectively shared across stakeholders actively pursuing the work-ready business graduate.

Including, and empirically examining, transfer within a model of graduate employability may explain persistent gaps in certain non-technical skills. It will improve our understanding of factors influencing transfer and its impact on graduate workplace performance. It will

highlight collaborative stakeholder strategies for manipulating learner, learning program and workplace characteristics to nurture environments where transfer may flourish, building on existing literature in this area (Haskell, 2001; Billing, 2007). The development of explicit principles for enhancing transfer, similar to Billet's (2011) guidelines for maximising learning in practice-based (WIL) experiences, will assist stakeholders in improving graduate work-readiness. The rewards are great: improved graduate retention and job performance, a learning culture which nurtures innovation and change and organisational excellence (Holton & Baldwin, 2003).

The proposed model, however, highlights the need for role and attitudinal change and continued progress in the systematic measurement of non-technical skill outcomes in university and workplace settings. As industry's wish lists evolve and grow, stakeholders in undergraduate education must engage with skill transfer to achieve graduate employability and relinquish the assumption of transfer. Educators must enhance our understanding of learning transfer through cross-disciplinary empirical research. Advancement in systematically assessing learner mastery of non-technical skills, at a range of levels as they progress through the degree program and into the workplace, is required for gauging skill outcomes and transfer.

Employers must accept the mastery of skills at university provides an assurance of capability to learn a given skill set with no guarantee of perfection in the workplace (Leveson, 2000). 'Transitional learning' takes place largely within the work environment (Hager & Hodgkinson, 2009) and the role of employers is to tease out graduate capabilities by providing an environment which fosters transfer through, for example, opportunities for practice and appropriate supervision. Industry's potential contribution to non-technical skill development at university, through consultation on relevant curricula content and the provision of 'real-life' student projects, should also be realised. Finally a commitment from undergraduates to participate in learning communities, reflect on their learning and develop certain personal characteristics which sustain their motivation and capacity for learning and transfer is required.

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