Chapter 7: Hitting the Ground Running: Group Simulations within Business School Cohorts

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7.1) Abstract:

Within an ever more marketised Higher Education (HE) landscape, business students are focusing increasingly on the Graduate Premium. This involves balancing the costs of their programmes against expected benefits such as facilitated entry into, and progression within, fulfilling and well remunerated business careers. As such, educators are charged with differentiating their programmes from those of other institutions, not only to attract more applicants, but also giving their graduates a competitive advantage in the marketplace. The use of simulations as a learning and assessment strategy within business schools is widespread and growing, affording the dual role of enhancing programme attractiveness and enhancing graduate capabilities and hence employability. The purpose of this chapter is to analyse, by means of a literature review, the debate surrounding the use of such technology, identifying pedagogical benefits and potential limitations, and to critique how such technology may be harnessed to provide more transparent pathways to professionalism for today's diverse and demanding students. This review highlights some of the key benefits and challenges experienced by students in using simulations, as they adapt to a newer of different social and learning culture, as well as various benefits afforded around the explicit learning experience and the development of both "hard" and "soft" skills ahead of entry into the employment marketplace.

Keywords: Masters' business programmes, curriculum enhancement, simulations learner employability, skills development.

7.2) Introduction:

Academic justifications abound for the use of simulations as a component of learning and assessment strategies within UK business schools. Certain generalisations and preconceptions remain insufficiently challenged, thereby masking widespread barriers to implementation and participation, especially amongst diverse international cohorts. However, the modern debate on simulation use is healthily critical. By linking articles which establish employer demands upon, and expectations of, business graduates (Vance, 2007; Cronan & Douglas, 2012) with analyses of desired

pedagogical outcomes, it is possible to assess the extent to which 'Learning Gain' and employability skills are inseparable, or might at least be embedded in a conjugated format. The rapidly evolving HE landscape, consumerisation of education and expectations of millennial students demand that the 'pedagogy' and 'employability' discussions of simulations develop in tandem to generate better awareness of their reciprocal effects. By placing business simulations within the theoretical contexts of web-based learning applications (Newman & Hermans, 2008; Kaplan *et al*., 2009), collaborative group work and social learning (Hromek & Roffey, 2009), and experiential learning (Hofstede *et al*., 2010; Chavan, 2011), the intended links between pedagogy and employability may be critiqued (Johnson *et al*., 2007; Kozlowski & Ilgen, 2006; Bovinet, 2007). Moreover, by observing learner and educator perceptions of simulations (Chapman *et al*., 2009; Garber *et al*., 2012; Vos, 2015), the first of which are underrepresented in the literature, the theory-practice lacuna may be understood in more detail by triangulation of perspectives.

Much has been written about students' positive affect and behaviour in group business simulations (Neu, 2012; Kear & Brown, 2015), potential covert group dynamics and the effects upon learner experiences and expectations of learner diversity and cohesiveness (Barr *et al*., 2005; Van Kleef *et al*., 2008). Likewise, phenomena such as student cooperation, collaboration and competition are well documented (Fortmuller, 2009; Tuten, 2009; Freeman & Greenacre, 2011), as are the broader, interpersonal issues such as social loafing and lone wolf behaviours (Dommeyer, 2007; Aggarwal & O'Brien, 2008). However, there has been scant discussion of their effects upon the embedding of employability skills in simulations. In addressing that here, strategies for maximising the potential of group work and simulations (Kennedy & Dull, 2008; Vos & Brennan, 2010; Taylor *et al*., 2012) are analysed in the context of both pedagogical and employability outcomes, considering also the major cognitive and affective consequences of simulations in terms of student preparedness for employment (Neu, 2012). The level of congruence between simulation objectives and outcomes (Brennan & Vos, 2013; Bascoul *et al*., 2013; Vos, 2014) is gauged, identifying limitations in the current literature, and suggesting avenues for future debate.

7.3) The adoption of simulations in business schools:

Educational games have gained wide acceptance within HE, as universities aim to provide experiences which are less didactic, and more learner-oriented (Young *et al*., 2003; Karns, 2006). In business schools, simulations constitute an important pedagogical strategy for promoting positive cognitive, affective and behavioural outcomes in students (Neu, 2012). Within such digital simulations, students are required to work in teams, assuming the role of managers in fictitious

organisations and making decisions based upon their bourgeoning theoretical knowledge and the ever-changing data within the virtual landscape of the game. This data may relate to the strengths and capabilities of the simulated organisation, its customer base, its competitors, and the markets in which it and the student teams compete. Simulations therefore provide an opportunity for students to gain managerial skills in safe environments where money cannot be lost and companies cannot be bankrupted. Leading simulation games include Simbrand, in which student teams build a smartphone brand by assembling product portfolios for penetration of European and Asian markets, and April, in which teams represent competing European car manufacturers. Business academics often display stronger preferences for Technology Enabled Learning (TEL) than colleagues in other faculties (Buzzard *et al*., 2011), or perhaps consider it more congruent to their subject matter. Business schools also place great emphasis on students learning to work collaboratively in groups, anticipating their graduates' working environments. Indeed, these skills are ranked by graduate recruiters even more highly than critical thinking and good communication skills (Vance, 2007), and simulation participation has repeatedly been linked with success in securing jobs and progressing within a career (Steen, 1998; Halfhill & Nielsen, 2007; Cronan & Douglas, 2012). Therefore, whilst academics expect simulations, and experiential learning more broadly, to yield improved learning outcomes (Cheng *et al*., 2008), much of the rationale for adoption of simulations revolves around the development of students' professional competencies, falling into the categories discussed next.

Simulations encourage open-mindedness amongst participants, as they work in diverse groups, accommodating each other's strengths and limitations, and this is believed to instil a more consensual managerial ethos that underpins their future careers (McCorkle *et al*., 1999). By making business decisions which are informed by, and impact upon, several different discipline areas, participants gain a more holistic understanding of the interconnected nature of business, rather than developing a silo mentality (Fripp, 1993), and this promotes decision making skills suited to an integrated business environment (Mitchell, 2004), which may encourage a more inclusive managerial approach. Many employers note the difficulty with which graduates apply theoretically informed knowledge into practice, and active learning strategies such as simulations are partially designed to overcome this (Hamer, 2000; Faria *et al*., 2009). However, the skill set which employers have found most lacking in business graduates, even more so than group work skills and theory-informed practice competencies, is the ability to interpret and use numerical, and particularly financial, data within a quickly evolving, competitive and turbulent commercial marketplace (Ganesh *et al*., 2010; Saber & Foster, 2011). Simulation exercises potentially address this (Vos & Brennan, 2010), partially by normalising business students to an environment in which they will be held accountable for their decision-making.

Although the above considerations centre specifically on the development of students' professional competencies, rather than on more immediate pedagogical gains, the two types of motivation for adoption should not be seen as discrete or mutually exclusive. For instance, the ability of educators to provide instant, synchronous feedback to students, which is facilitated by simulations, may increase learner engagement immediately (Mitchell, 2004; Vos & Brennan, 2010), but also feeds a more longitudinal employability agenda through encouraging students to scrutinise their own managerial performances. Likewise, whilst simulations promote competition as a conduit to the contextualisation of knowledge (Bransford *et al*., 1999), the benefit is not purely in terms of short-term understanding, but in vocational gains such as the strengthening of one's competitive competencies (Crittenden, 2006). Other considerations also affect educators' decisions to adopt business simulations: levels of congruence between the simulation on the one hand, and the programme/module objectives and institutional mission on the other; the instructional style, personal disposition, confidence and technological capabilities of the individual educator; levels of acceptance indicated by previous student cohorts (or pilot groups) through evaluation and feedback; and logistical or financial factors such as the costs of software licences, the ease with which simulation usage can be incorporated into the module architecture, access to training (Bobot, 2010), and the competencies and willingness of the module teaching teams. The decision to adopt a simulation may also be driven by levels of intrinsic student motivation, if it is deemed that a cohort requires a simulation to be embedded interdependently within a module to engage them collaboratively (Pinto *et al*., 1993). Therefore, simulations are adopted for various reasons within both pedagogical and employment agendas and these are largely intertwined. There are, however, several other considerations beyond these two agendas, which mediate within, and impact upon, the decision whether to deploy within a particular curriculum setting.

7.4) Group work, simulations and authentic learning:

A rich tradition of research details how web-based applications have been utilised within learning environments to recreate real-life experiences (Ryan *et al*., 2001; Simon *et al*., 2003; Workman, 2004; Hansen, 2006; Peltier *et al*., 2007; Newman & Hermans, 2008; Kaplan *et al*., 2009). The most common form for these applications to take is team-based exercises within business curricula (Bolton, 1999), and the most commonly identified benefits to students include the building of communication and employment skills, inspiration towards entrepreneurship, enabling learners to research and analyse financial and numerical data, orienting them towards conflict resolution strategies, acquaintance with forecasting results, familiarisation with problem-solving, and the

habituation of interpersonal interaction and leadership (Williams *et al*., 1991; Faria, 2001; Hansen, 2006). An appreciation of cultural diversity, and a willingness to think critically, may constitute much of the social development within group work (MacGregor *et al*., 2000). Many students relish the joys and frictions of diverse interrelationships within collaborative group work (Matthews, 1994), perceiving that it serves a wider range of learning styles (O'Sullivan *et al*., 1996; Hendry *et al*., 2005). By situating experiential learning in multiple complementary contexts, the use of games facilitates student cognisance of complex concepts (Shaffer *et al*., 2004). This, in turn, aids attainment of higher cognitive skills (Bloom, 1956; Garris *et al*., 2002), enabling participants to learn through close quarters observation of successful team mate behaviours (Williams *et al*., 1991). By determining multiple inter-related decision elements, a student's understanding of management can become more integrated (Goosen *et al*., 2001). The meaningfulness, complexity and realism of the tasks are likely to stimulate learners' interest and motivation (Goretsky, 1984; Williams *et al*., 1991), and their intercontextualised but repeated presentation is partially intended to increase learners' retention of applied theory (Bacon & Stewart, 2006).

The learning development within group exercises may be considered both social and emotional (Hromek & Roffey, 2009), and this is especially the case within experiential learning activities, which particularly appeal to business students, who tend to be more kinaesthetic and active-oriented in their learning styles than the general student population (Karns, 2006). Although passive learning strategies may be suitable for conveying objective information (or adopted for purposes of economic expediency), most students enjoy longer attention spans and engage higher order thinking within active learning strategies (Hamer, 2000), which further commends the embedding of such approaches within business courses (Wright *et al*., 1994). A wide variety of learning styles (Kolb & Kolb, 2012) may be accommodated within simulations, which provide learning in each stage of learning development (McHaney *et al*., 2002; Kolb, 2014), and allow students the freedom to adopt their own personalised perspectives in undertaking tasks. This level of learner differentiation not only replicates the diversity that these individuals will experience in their subsequent careers, but also boosts metacognition by encouraging them to assess how they can bridge the theory-practice divide in a manner most suitable to them.

Deep learning is a requisite of effective business pedagogy (Bacon & Stewart, 2006). Particularly desirable is the authentic learning which may be achieved my immersing students in business culture to learn problem-solving skills (Diamond *et al*., 2008) and other professional competencies from experienced practitioner-educators (Driscoll, 2000). Digital simulations and other instructional technologies are intended to augment learning by simplifying, expediting or expanding it (Peterson *et al*., 2005), orienting the student towards authentic environments (Karns, 2006). In such a process,

the learner often recognises the applicability of what they are undertaking to a vocational situation, and this salient demonstration of the exercise's relevance to work is likely to motivate them, multiplying the potential benefits.

7.5) Employability as an outcome:

Many of the benefits of business simulations to learners' employability are discussed in academic papers not ostensibly concerned with employability, particularly those studies focused primarily on pedagogical issues, seemingly to the exclusion of vocational concerns, but which take it as a de facto end result, an unmentioned 'once-removed' outcome. Whilst this is largely attributable to the need for narrow research scopes, it could also be considered a limitation of the debate that pedagogical gains in business courses are not always considered within an employability context. Nonetheless, this is not the case for all literature on the subject. For instance, Johnson *et al*. (2007) were explicit in exploring the links between group work undertaken in universities with participants' employability, and the alignment of education with students' future work demands through authentic learning, although not focused specifically on simulations or business schools. The efficacy of group work in preparing students for similar situations that they are likely to undertake within employment is a well-trodden debate (Henke, 1985; Sundstrom *et al*., 1990; Pinto *et al*., 1993). Whilst student needs and expectations have evolved from those of Generation X to the Millennials, driven by the proliferation of digital technology, tuition fees, the consumerisation of society, alongside other factors including the evolution of employers' expectations, has perhaps been more drastic due to the changing nature of work, and it is this side of the equation on which the debate on employability in simulations often concentrates.

It is thought that many real-life workplace teams fail due to a lack of team development, teamwork skills or experiential learning amongst many workers (Livingstone & Lynch, 2002; Kayes *et al*., 2005). Likewise, the insurmountable difficulties which many adults encounter in undertaking complex tasks often stem from them lacking the multiple perspectives and skills, such as problem solving and researching, addressed through business simulations (Floyd & Gordon, 1998; Katzenbach & Smith, 2005; Kozlowski & Ilgen, 2006; Bovinet, 2007). Therefore, universities can provide their students a significant competitive advantage by using pedagogical strategies such as simulations to address these vocational challenges (Bacon & Stewart, 2006). For this reason, several functions, activities and competencies are designed into simulations and embedded within the learning strategies. These include teamwork, communication within and across teams, manipulation of theory and data,

integrated analysis, cooperation and collaboration, strategy formulation, and problem identification and solution (McCorkle *et al*., 2003; Rundle-Thiele *et al*., 2005; Zantow *et al*., 2005).

7.6) Experiential learning, professionalism and business simulations:

The conceptualisation of university education as the consumption of educational experiences predates the recent surge in consumerism and marketisation in the UK HE landscape resulting from tuition fees and other factors (Watson, 2003), with 'consumer' outcomes taxonomized in terms of cognition, affect and behaviour (Peter & Olson, 2008). This may go some way to explaining the migration of business schools from passive to active learning strategies and techniques (Daly, 2001) which endow more meaningful learning experiences (Granitz, 2001) and help to orient students towards the strategic application of theory into practical situations (Kneale, 2009). Experiential learning should not be deployed as an antidote to passive methods used elsewhere in a programme of study, but should inform the entire ethos of the learning process, demanding that students reflect longitudinally upon newly acquired knowledge and less recently developed understandings (Armstrong & Mahmud, 2008). In addition to its accommodation of various learning styles (Karns, 2006), experiential learning encourages students to critically analyse their knowledge upon its application, thereby creating meanings (Chavan, 2011) and engaging with emerging information by assimilating it with extant knowledge (Hamer, 2000). This is intended to embed learners socially within practice prior to employment, naturalising them to their intended professional environment in advance, and creating an emotional bond between the learner and business (Hofstede *et al*., 2010).

Despite the above debate focusing on business simulations' role in bringing learners closer to their favoured industries, in terms both of acquiring appropriate skills and developing a suitable mindset, commentators are quick to extrapolate backwards to the current benefit, from long-term employability to immediate pedagogical gains, perhaps intimating that the latter is prioritised within HEIs, or that educators should be process-driven rather than product-driven in their employability agendas. For instance, the aforementioned employability gains are understood to enthuse and motivate students (Garcia & Pontrich, 1996; Dabbour, 1997) moving then towards higher pedagogical outcomes, performance levels and grades (Perry *et al*., 1996; Drea *et al*., 2005), which may be achieved by increasing students' retention of knowledge (Smith & Boyer, 1996) and raising their perceptions of the course efficacy (Karns, 2006). Whilst many arguments have been proposed advocating greater use of active learning strategies within business schools (Porter & McKibben, 1988), often being based upon Kolb's (2014) Learning Cycle or Kolb & Kolb's (2005) Learning Spiral

(Vos, 2014), the sparseness and inconclusive nature of the empirical evidence supporting the utilisation of business simulations (Gosen & Washbush, 2004; Chin *et al*., 2009) should encourage a cautious stance towards the debate.

7.7) Student and educator perceptions of group work and simulations:

Whilst business simulations have inclusivity and differentiated learning at the core of their ethos, many academic studies have simplified positive comments from student exit surveys to suggest that student experiences are uniformly positive (Garber *et al*., 2012), which can be misleading. It is true that most students in UK universities favour at least some utilisation of group work (Chapman *et al*., 2006), and in particular simulations (Bobot, 2010). The majority of learners find them fun and motivational (Fortmüller, 2009; Hromek & Roffey, 2009). Many are encouraged to engage fully with simulations due to their perceived credibility (McHaney *et al*., 2002), or due to an entrenched belief that, by doing so, they will attain their required learning outcomes and fulfil their potential (McCorkle *et al*., 2001). However, this positivity is far from unanimous. The extent to which a student engages with simulations is at least partially correlated with their previous engagement levels (*ibid*.). Similarly, students' broader perceptions of learning exert considerable influence over their perceptions of simulation effectiveness (Washbush & Gosenpud, 1991). This also covers attained group marks, especially when compared with the level of academic performance and grade outcome they would have expected to achieve through different assessment strategies, these considerations being highly influential upon resultant attitudes toward group work. This is also true of the frequency with which team exercises take place, the resources allocated to them in class and within modules, learner perceptions of problematic group phenomena such as lone wolf and social loafing behaviours, and the rigour with which educators manage the peer evaluation process (Pfaff & Huddlestone, 2003).

A less well-explored area is that of educators' equivocal perceptions of simulations and other group work. Whilst around two thirds of business academics utilise learning technology, believing that it impacts positively upon delivery of intended learning outcomes, levels of learner engagement and student perceptions of learning, a significant minority are ambivalent or feel less positively inclined towards the effectiveness of group work (McCorkle *et al*., 2001). For some educators, this is due to previous negative experiences or critical incidents where such exercises have concluded negatively, leaving them feeling exposed, or resulting in conflict or negative student feedback. Although these experiences may only be ad-hoc, the 'law of small numbers' or availability heuristic (Tversky & Kahneman, 1973) may prompt educators to recall most readily those memories given their salience

or the extent to which they have resulted in personal anxiety. In this way, an isolated forced intervention to a dysfunctional group can overshadow the many forgettable instances of untroubled, successful group work (Ito *et al*., 1998). Therefore, when educators misperceive the dynamics inherent within group work, perhaps suffering disproportionately negative perceptions of inclusivity and cohesiveness, this can distort their subsequent motivation to adopt business simulations (Chapman *et al*., 2009), thereby denying both themselves (as educators) and students the benefits of simulation interventions.

7.8) Positive affect and behaviour in-group business simulations:

By engaging with simulations (and even anticipating engagement), students produce emotional responses to them (Kear & Brown, 2015). These emotions, especially when positive, complement the extrinsic motivations that students have to engage, such as the expected attainment of high marks. Highly motivated students are likely to outperform their peers and achieve the learning outcomes that the simulation is intended to produce (Hinck & Ahmed, 2015). Social interdependence theory underpins much of the literature on learning attainment within group work, often noting ways in which learning outcomes are predicated not just on an individual's academic growth, but also on their social interdependence and engagement levels of the individual student (Smith *et al*., 2005). However, motivation to engage with learning is also driven by students' positive emotions towards simulations (Gee, 2003; Squire, 2003), with learners who are resentful or cynical towards them faring less well. Many students are fearful or confused at the onset of simulations (Petranek, 2000), especially if it is their first experience of such a learning strategy, or if they feel exposed to the possibility of attaining lower marks. This may be understood as an element of trust in which learners consent to being partially vulnerable and at the mercy of team mates' actions if they anticipate that those colleagues will produce a reliable performance throughout the exercise (Neu, 2012). The construct of trust itself arises from trustworthiness, and this is built upon a student's expectations regarding colleagues' abilities, integrity and benevolence, which in turn are founded upon prior observations of those team mates in similar contexts (Mayer *et al*., 1995). A classmate who is believed to have a desire to help and support intra-team colleagues is considered benevolent, and one who is expected to adhere to accepted values, namely being equitable, diligent, honest, timely and reliable, and isthus perceived to possess integrity (Neu, 2012). This may suggest that trust is earned over time or denied for non-adherence to these values. However, perceptions of trustworthiness amongst student teams may also be influenced, perhaps unconsciously, by personal prejudice towards someone's race, religion, gender, ethnicity, clothing, appearance or another

attribute (Mayer *et al*., 1995), thereby signposting the crucial importance of tutor vigilance and, if necessary, intervention, if fairness and equity is to be guaranteed and professional pathways followed.

It is commonplace for students to discuss the strengths and weaknesses of intra-team colleagues, both overtly and covertly, to allocate the most appropriate units of work to each. To do this, the attributes most frequently evaluated are benevolence, trustworthiness, integrity and ability, with those students ranked highest usually being allocated the tasks carrying the highest risk. There is a danger inherent in this that students will approach group work as if it were a collection of interrelated but nevertheless discrete and autonomous tasks to be collated post hoc (Neu, 2012), thereby negating several of the key social and collaborative gains intended of simulations and undermining employability skills. By this type of labour division and provision within teams, students are likely to attain proficiency at one task, rather than gaining a more holistic and coherent understanding. Neu (2012) observed four key roles emerging from such piecemeal groups: leaders, who motivate others and coordinate efforts, allocating resources and orienting teams towards intended outcomes; 'hamsters', who diligently follow others, productively but with little desire to dictate the direction of travel; 'creators of inequity', who under contribute to the task through a combination of laziness, inability, low ambition, poor self-confidence, or even a lack of opportunity to contribute; and 'solvers of inequity', who are active in detecting and tackling under contribution by a number of means, which may include reactive strategies such as compensating by over contributing themselves, or proactive ones such as denying task allocations to less motivated or able team mates. Whilst student team heterogeneity, and its effects upon group performance, has been explored (Bettenhausen, 1991), less is known about the effects of students adopting the above roles, and how those dynamics present themselves between, rather than within, teams. This is potentially deleterious to the professionalising of business students when one considers the way separate teams, for example, across departments such as Sales, Marketing, Finance, and Customer Services, must come together successfully in real work situations.

7.9) Learner diversity and heterogeneity, or cohesiveness and homogeneity?

Business programmes and modules often serve diverse, multinational cohorts, with students preferring many different learning styles (Frontczak & Rivale, 1991; Karns, 2006) and displaying widely varying skills and attributes, motives, and even ages and employment statuses (Barr *et al*., 2005). There is therefore a need for simulations to respect, and cater for, these differences (O'Neil *et al*., 2005). Although many students believe heterogeneity detrimental to simulation team

performance, this is unproven and may merely be a smokescreen for the widespread deficiencies which students experience in conflict management (Anderson, 2005). Many students attempt to manage out heterogeneity artificially by clustering with classmates of their own nationality and social group during team formation, perceiving that a cross-cultural team make-up may produce inequitable contributions and abilities (Payne & Monk-Turner, 2005). This is problematic for several reasons: it can unfairly disadvantage overseas students, who may already feel isolated, prejudged and in need of support; it may prevent universities from honouring their promise of non-segregated, culturally diverse learning and the immersion of overseas students into the local learning culture; it stunts the development of home students in terms of their cultural awareness; it hinders the internationalisation of the curriculum and student experience from being anything deeper than cosmetic; and it is a barrier to professionalism in an increasingly interconnected, global business environment. There are other advantages that home students can enjoy by working with overseas team mates. Whilst neither ethnicity nor age increases a student's numerical aptitudes within simulations, many overseas students are more self-efficacious numerically at the outset of a simulation exercise. It has also been found that women gain numerical understanding at a greater rate than men within simulations (Brennan & Vos, 2013), thereby implying that student intersectionality, in this case, between being female and having qualified overseas, can bring significant benefits to simulation teams. These benefits are often reciprocal, as the application to practice and the collaboration inherent within simulations produce more positive learning outcomes in women than men (Brew, 2001).

The varying ability levels of learners within many simulation groups allow students to be differentiated from one another and provide distinct contributions. These abilities may centre on writing and communication, the harnessing of technology, emotional intelligence, mentoring and support, management of processes or people, presentation skills, or the provision of perspectives which complement those of team mates. These abilities are gauged by peers through observation of displayed behaviours, the responses which these behaviours elicit from others, and by an unconscious understanding of the nuances of their vocabulary (Neu, 2012). Where all team members are oriented to similarly ambitious goals and there is congruence between their expectations, teams are likely to be cohesive (Bourner *et al*., 2001; Johnson *et al*., 2007). Where conflict occurs within groups, this may be incubated, impacting very negatively upon levels of student satisfaction (Van Kleef *et al*., 2008), invariably undermining the performance of at least one member. Therefore, many students seek to circumvent the random nature of imposed team formation by self-selecting from an existing social network, the exact membership of which may be amended dependent upon the needs of the simulation task to ensure a complementary skill set. This

uncertainty avoidance is particularly prevalent where simulation performance is linked to module marks (Neu, 2012). Thus, whilst uncoupling simulations from the marking mechanism, adopting them as a learning strategy and perhaps for formative assessment, but not for summative assessment, may mitigate against this effect, the inclusivity of the assessment strategy and its equity across all learner types may be compromised slightly. However, the increased student acceptance of intra-group heterogeneity may lead to long-term benefits such as more diverse group composition and more internationalised preparation for the world of work. Trust, low levels of conflict, and especially cohesion within simulation teams increase levels of student enjoyment (Anderson, 2005), and should therefore be monitored and managed by educators to maximise employability gains. Whilst group cohesiveness is often loosely defined and open to interpretation, it should not be conflated with homogeneity. Rather, it results from such factors amongst and between peers as trust, willingness to help, cordiality, mutual personal interests and values, mild or infrequent conflict (if any) and competent handling of conflict, reliability, competence, honesty and integrity, effective listening skills, and a common desire to achieve a good mark and attain higher learning outcomes (Chapman *et al*., 2009).

7.10) Cooperation, collaboration and competition within business simulations:

Cooperation and collaboration may be considered equally important to compromise and communications within team work (Katzenbach & Smith, 1994). Cooperative learning is the term given to team-based goal accomplishment that is achieved interactively (Freeman & Greenacre, 2011). Its constituent tasks may be discrete but, by definition, are interrelated. It is therefore of great benefit to students (Hromek & Roffey, 2009) as it instils attributes such as empathy, motivation, self-esteem, self-control and criticality, helping learners to improve their conflict resolution skills and learning outcomes, and building their acceptance of diversity and perceptions of learning (Johnson *et al*., 2000). Collaborative learning differs slightly from cooperative learning insofar as it entails members working together on one task towards the accomplishment of a specific outcome, usually facilitated by the replication of key competitive aspects of business from real-life situations (Adobor & Daneshfar, 2006; Wideman *et al*., 2007). It is particularly effective in enabling learners to utilise theory into practical applications (Tuten, 2009). Despite the spirit of collaboration, students often opt to play competitively if so motivated (Fortmüller, 2009). However, it must be noted that whilst many students become positively oriented towards simulations and more deeply engaged as a result of competition (Kratwohl *et al*., 1964), many others may feel neutral, ambivalent

or negatively towards competing against classmates (Meese *et al*., 2006), and this is likely to be the case more frequently amongst learners from more collectivised cultures.

7.11) Potential barriers to success within business simulations:

Most students appear to find simulation participation highly beneficial to their learning and performance (Wilson *et al*., 2009), and the benefits are especially conspicuous within assessment having an overtly numerical content (Brennan & Vos, 2013). However, the inconclusive nature of much research into the efficacy of simulations (Vaidyanathan & Rochford, 1998), and the sparsity of empirical evidence (Gosen & Washbush, 2004), has led to widespread scepticism surrounding business games (Anderson & Lawton, 1997). Several studies have posed strident challenges to the legitimacy of simulation usage. Chin *et al*. (2009) reported that only a minimal number of learning simulations had been tested in an academically robust manner. Elsewhere, simulations are dismissed as superficial and lacking an evidenced contribution to learning (O'Neil *et al*., 2005; Egenfeldt-Nielson, 2007), whilst other research has warned educators not to conflate the undoubted potential of simulations to motivate students with their more uncertain contributions to learning outcomes (Chin *et al*., 2009). Furthermore, it has been noted that simulations are not 'a rising tide which lifts all boats', at least not to an equal height, with some students feeling much smaller benefits than others (Vaidyanathan & Rochford, 1998). Such a suggestion is a direct challenge to the idea that simulations foster equity between learners. Perhaps most surprisingly, they have attracted some isolated criticism for supposedly supporting lower level cognitive learning (Anderson & Lawton, 1997) rather than the higher, analytical levels detailed by Bloom (1956), although this accusation is in direct contradiction to conclusions drawn by others (Hsu, 1989).

Many more generalised criticisms of experiential learning are indirectly applicable to business simulation use. These include that their effectiveness may be inhibited by poor team dynamics that largely insurmountable barriers to simulation participation may confront those unacculturated students who lack reflexivity, confidence and preparedness (Boud *et al*., 1993) and that disparities in participation levels described earlier produce an inequity of learning outcomes and attainment levels amongst participants (Batra *et al*., 1997). Added to these, widespread allocation of discrete tasks to individuals within groups counteracts the intended benefits of team work (McCorkle *et al*., 1999); 'social loafers', who under contribute to tasks compared with team mates, and 'lone wolf' members, who dominate the direction of tasks or insist on working in isolation, undermine the validity of simulations (Latane *et al*., 1979; Barr *et al*., 2005). This may result in less able learners being more likely to be burdened by addition pressure and workload, as they benefit less from simulations than

high achievers (Hamer, 2000). Many educators experience problems when allocating students to teams (Pfaff & Huddlestone, 2003) and teams commonly struggle to delineate expectations and agree goals at project commencement, and to manage inequitable contributions and conflict professionally (Buckenmyer, 2000). Educators may also accidentally erode the authenticity of assessment through an inability to allocate marks accurately and fairly to individuals within teams in a way which reflects their contribution (Tu & Lu, 2005).

All of the above inhibiting factors, whilst damaging if unmanaged, are surmountable, but only with vigilance, planning and resolve on the part of the educator (Gardner & Korth, 1998). However, there is relatively little empirical research into the impact upon students of these negative outcomes (Neu, 2012). Demotivation, distress, confusion and disappointment were recognised in students who had produced unsatisfactory performances within marketing simulations (Kear & Brown, 2015), and their reflections upon the reasons for failure almost invariably focused on collective expressions of team underperformance rather than specific decisions which were representative of a real-life situation, thereby diminishing simulation efficacy. Amongst the 16 student group functionality metrics proposed by Chapman *et al*. (2009), prominent antecedents of success within groups were a lack of arguments, and the fostering of environments in which commitments are honoured, communication is transparent, and participants feel comfortable seeking and giving assistance. Such team mates would make friends, work harmoniously without conflict, trusting each other's abilities, managing group time efficiently, taking an interest in each other, taking pride in their work, collaborating, and dividing work fairly. Additionally, the most successful groups would at least implicitly nominate a leader, have fluid, interchangeable roles, and contain members who were all motivated by the achievement of good grades.

7.12) The prevention of social loafing in simulations:

Social loafing is the deliberate under contribution to a team task by one or more members, who instead rely on team mates for the successful completion of the task (Williams *et al*., 1981; Payne & Monk-Turner, 2005; Dommeyer, 2007; Aggarwal & O'Brien, 2008). In excess of 40% of students have suffered such behaviours, which are particularly resented (Colbeck *et al*., 2000). Some loafers may under contribute only marginally in the quantity of their work but more seriously in terms of quality (Strong & Anderson, 1990). As the simulation progresses, a loafer is likely to become emboldened in their delinquency if the educator makes no remedial intervention (Bourner *et al*., 2001) and thus risks damaging the performances and experiences of team mates (Johnson *et al*., 2007). Diligent team members are often able to arrest loafing by confronting the offender and agreeing mutually

agreed deadlines, standards of conformity and reporting to prevent further 'drift'. However, loafers are frequently excluded completely from tasks (Aggarwal & O'Brien, 2008), and this may undermine the task and assessment authenticity, increase other group members' workloads, and exacerbate (or reward) unacceptable behaviour in increasingly marginalised, alienated members. The preventative and preemptive intervention strategies utilised by educators typically involve requesting teams to record meeting minutes or diary entries (Dommeyer, 2007), the inclusion of peer assessment (Aggarwal & O'Brien, 2008), or accessing participation logs which detail individual student participation times and durations (Brandyberry & Bakke, 2006). Such actions are crucial as many students, when they become increasingly annoyed with recidivistic loafing behaviours, resort to deliberately punitive actions such as allocating loafers tasks to which they are ill suited, omitting them from team meetings and online communications, purposely scheduling meetings at times when they are unable to attend, withholding reasonable support, or setting unattainable deadlines (Payne & Monk-Turner, 2006). All of these deliberately destructive actions could produce a snowball effect that exacerbates the problem, deleteriously effecting loafers and contributors alike.

A further complication is the commonality of several attributes between loafers and strugglers, the latter being those students who unintentionally underperform in team exercises such as simulations (McLean *et al*., 1998). Strugglers may suffer due to a linguistic barrier (Rosser, 1998), lack of understanding or low self-esteem. They are, or may perceive themselves to be, lower ability students, although they may be only marginally behind their team mates in terms of understanding and need relatively little incremental study time in which to catch up (Dufour, 2004). Sadly, strugglers are often subjected to the same deleterious team behaviours as social loafers, as contributing students regularly fail to (or choose not to) distinguish between the two types of underperforming group member. These behaviours can continue until the conclusion of the simulation, inhibiting the development of those students most in need of help and deserving of it, and this often damages the entire group performance (Freeman & Greenacre, 2011). In lacking peer evaluation skills, many students judge strugglers inappropriately and adopt draconian measures against them (Falchikov & Magin, 1997). Educator vigilance and targeted interventions in which the difference between the two underachieving learner categories is explained reduce these misdirected and destructive behaviours (Freeman & Greenacre, 2011).

Peer evaluation mechanisms ensure assessment authenticity, increasing the credibility of group work and boosting student satisfaction (Druskat & Wolff, 1999). They may also reduce incidences of social loafing by facilitating scrutiny and judgment of individual performances (Aggarwal & O'Brien, 2008), and this is particularly true when cohorts are warned at module commencement of the forthcoming use of peer evaluations, and the potential penalties for (corroborated) negative

feedback. Whilst some students refuse to rate peers negatively to avoid conflict or repercussions through word-of-mouth (Sherrard *et al*., 1994), others may simply be more tolerant or forgiving (May & Gueldenzoph, 2006). Some groups 'close ranks' through a pledge of silence, or by equal or collaborative rankings (Neu, 2012). In any case, it is important for educators not to take peer evaluations at face value, but to seek mitigating evidence from any accused student, both directly and through their online simulation logs.

7.13) Maximising the potential of simulations:

As suggested by Chapman *et al*. (2010) in their measure of group work effectiveness, simulations work best when students collaborate, resolve conflict, take pride in their work and goal attainment, and especially when they enjoy working together enough to choose to do so again. To make simulation work as enjoyable as possible, educators should nurture intragroup communications, trust, conflict resolution and cohesion (Huff *et al*., 2002; Williams *et al*., 2006). However, it may be argued that this does not necessarily prepare students for professional careers, which often entail long periods of pressure and sacrifice when enjoyment is low. Creative problem solving within simulations may be facilitated by fun and humour, but also by hypothesis-driven strategies and group opportunism (Anderson, 2005), which may more closely replicate professional practices. The self-assertion of individuals' social interdependence within teams can magnify positive outcomes or reduce destructive behaviours (Freeman & Greenacre, 2011). Course design can assist in this, particularly if students are trained how to behave professionally within teams (Prichard *et al*., 2006), with those trained in meeting management techniques being more likely to unify and stabilise the group (Kennedy & Dull, 2008). Instructor coaching which continues longitudinally throughout a simulation can improve outcomes (Bolton, 1999; Taylor *et al*., 2012), especially where the teaching of reflexive professional skills, such as the maintaining of logs and the reviewing of decision making processes, helps to democratise experiential learning (Moon, 2004; Peltier *et al*., 2005). This may be more achievable in teams of three or four students (Wolfe & Chacko, 1983) in which pedagogical activities correspond closely to the learning styles present (Karns, 2006).

Student attitudes towards group work may be strongly influenced by instructors (Chapman & Van Auken, 2001), enhancing their ability to operate in a simulation context by engaging them (Deeter-Schmelz *et al*., 2002). This is achievable partially through 'tutor-to-student' activities and behaviours, such as encouragement (Kayes *et al*., 2005), resolution of social loafing (Dommeyer, 2007), or the provision of increasing critical, stepped feedback contextualised ever more broadly. It is also assisted by the implementation of 'student-to-tutor' techniques including post-simulation 'executive

briefings' and board presentations (Keys & Bell, 1977). The potential of such actions to augment learning is considerable (Crookall, 2010), especially where the perspectives of all participants are explored (Kriz, 2008), and where such activities are undertaken prior to the announcement of the final results, to capture students' attention (Bascoul *et al*., 2013). By promoting student reflexivity, conceptualisation and experimental skills, this kind of debrief makes a simulation more effective (Rudolph *et al*., 2006; Dieckmann *et al*., 2009), and channels the outcomes in a more targeted fashion towards the attainment of professionalism.

Where collaborative group skills are prepared through pre-exercise training (Prichard *et al*., 2006), or where institutions or faculties run separate courses focused on group competencies, student performances in teams may be improved (McCorkle *et al*., 1999). Within the management of a simulations, educators are advised to clarify the exact modus operandi expected of teams (Wood, 2003), the criteria for managing and assessing individuals (Tyagi, 2010), and the functionality and rationale for peer evaluation (May, 2008). In doing so, role ambiguity is reduced and students feel more surefooted. Wherever possible, best practice dictates that simulation assessment should be longitudinal during and after the simulation, rather than purely at its conclusion, thus ascertaining levels of ongoing student improvement and ensuring engagement (Michael & Chen, 2005; Vos & Brennan, 2010). To elongate the benefits of simulation-based learning further still, post-simulation pedagogical strategies may include reflexive debrief sessions (Kriz, 2008), retrospective performance analysis (Dommeyer, 2007), and a critical discussion of the simulation's relevance to professional practice, which should aim to legitimise its utilisation and motivate learners who are also workers or who will be in the near future (Knowles, 1984; D'Aloisio, 2006). Verisimilitude, the extent to which students consider the simulation representative of a real business or marketplace, should be monitored carefully to allow any necessary corrective interventions (Chin *et al*., 2009; Garber *et al*., 2012), although students with little or no work experience are more likely to find themselves less motivated in this respect.

7.14) Cognitive and affective consequences of group work and simulations:

The group work consequences experienced by students may differ from the intended benefits discussed hitherto (Neu, 2012). Most instructors are likely to be aware of more conspicuous, behavioural consequences such as the discrete division of labour and group self-selection, but less so of cognitive and affective ones. The main cognitive consequences of simulations are the greater desire for autonomy within a group setting, a temptation to coast amongst less committed students who perceive 'grade boost' or a levelling out of marks across teams, and perhaps a sense of injustice

arising from group assessment. Moreover, perceptions of injustice may stem from witnessing disparities of effort and learning, feeling constrained by a team, resenting lower achievers being marked up and vice versa, or perceiving a reduced likelihood of higher achievers being praised or recognised (*ibid*). Meanwhile, unintended affective group work outcomes for students include anxiety at simulation commencement that one might fare badly, frustration at team mates who are perceived to be an inhibiting influence, stress from modifying one's behaviours to fit into a team, disappointment at inequitable effort levels, and anger at real or perceived injustices. However, certain other affective outcomes may be more positive or constitute relief, when placed in one's preferred social learning network, from team mates' pleasing performances, from being spared the possibility of conspicuous failure associated with individual work, and from successfully completing the tasks (*ibid*). Whilst negative affective consequences require carefully corrective measures, instructors should also understand positive ones (Dommeyer, 2007; Aggarwal & O'Brien, 2008), as they may camouflage the true reasons for the failure or success of a simulation, misinforming their future pedagogical decisions.

7.15) The extent of congruence between simulation objectives and outcomes.

As discussed in the introduction to this chapter, educators adopt business simulations to encourage in students the development of critical thinking, decision making and problem-solving skills (Schibrowsky *et al*., 2002), leadership, public speaking and team building techniques (Barr & McNeilly, 2002), communication skills, cultural awareness, cross-functional and technological competences, discipline and metacognition (Chonko & Roberts, 1996). Through the careful alignment of business game objectives with module or programme content and desired pedagogical outcomes (Cotton *et al*., 1997), student approaches to business can evolve from the reactive and operational to the more anticipatory and strategic (Vos, 2014). Crittenden & Wilson (2006) divided learning outcomes for marketing students into material outcomes (ethical awareness, strategic competence, and cross-functional integration) and skill development outcomes (critical thinking, problem solving and, perhaps most importantly, professionalism), which were considered as interrelated criteria. Whilst the focus was on addressing the theory-practice divide within university Marketing courses through the use of internships and international exchanges, the outcomes lend themselves well as a frame through which to assess the effectiveness of business simulation efficacy.

Those students who adopt the deepest learning approaches (and who usually perceive they learn the most) pass through all four stages of Kolb's (1984) experiential learning cycle, thereby experiencing the 'concrete experience' of doing, the 'reflective observation' upon the learning

achieved, the 'abstract conceptualisation' of hypothesis-driven strategies, and the 'active experimentation' underpinning their decision making. Meanwhile, those experiencing relatively shortened learning cycles experience more superficial approaches to learning (Young *et al*., 2008). The interactivity and 'learning-by-doing' at the centre of simulation exercises is considered conducive to higher order learning (Wideman *et al*., 2007; Fortmüller, 2009), and thereby a more active engagement of the individual students (McCorkle *et al*., 1999). It also supports such desired outcomes as enhanced communication, technical and support skills, critical reasoning, retention and comprehension (Williams *et al*., 1991). Despite a critical minority of research challenging the contribution of technology to learning (Peterson *et al*., 2005), the field is also unanimous in proclaiming simulations successful in increasing student enjoyment and self-efficacy (Pollack & Lilly, 2008). This in turn provides social gains such as reductions in bullying, with more tolerant attitudes to diverse perspectives (Johnson *et al*., 2000), focusing learners on sustainability, and raising awareness of the individual learner's place within a broader community of stakeholders (Bascoul *et al*., 2013).

7.16) Looking to the future:

Educators can gauge student levels of business comprehension before, during and after simulation participation, but ascertaining the extent of incremental learning gained in respect of problem solving, creative thinking or other qualitatively assessed attributes is much less straightforward (Anderson & Lawton, 1997; Vos, 2014). This appears to have hindered research into business simulation usage and, consequently, its efficacy as a conduit to professionalism. Rather than being function-specific, many studies have been top-down and institution-centred in their concerns (Faria *et al*., 2009), or have relied on student or lecturer perspectives to the neglect of more objective measures (Vos, 2014). As one of the key aims of simulations is to embed employability and prepare learners for professionalism, it has been suggested that future research could establish the effects of instructors' prior industrial experiences (or indeed, academic ones) on their perceptions of their student groups (Chapman *et al*., 2009). Elsewhere, Garber *et al*. (2012) suggested several avenues for empirical research, such as testing simulation models against Kolb's (1984) learning cycle to ascertain suitability for professional training, exploring how group composition and gender-based learning styles affect outcomes, ascertaining the importance of game performance in the assessment of learning and interrogating the effects of group homogeneity and cohesiveness on learning outcomes. Any assessment of simulation effectiveness should consider the dual evaluation of "*hard*" skills attainment relating to knowledge development of business strategisation, functional

contribution and integration and holistic decision-making, alongside "*soft*" skills realisation relating to individual learning, teamwork, and heightened self-evaluation, emotional and cultural intelligence.

As more workplace roles are destined to be replaced by Artificial Intelligence and the advance of automation (Korinek & Stiglitz, 2018), it seems increasingly intuitive to use a computerised simulation in which learners interact with each other and technology synchronously. Moreover, as the marketisation of HE encourages students to focus increasingly on the career gains and earning potential resulting from their studies, simulations appear ever more congruent with the landscapes of learning and of work, by bridging the problematic divide between theory and practice and thereby offering learner assistance on their road to professionalism.

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