Viewing WIL in business schools through a new lens: Moving to the edge of chaos with complexity theory

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Abstract
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Viewing WIL in Business Schools through a New Lens: Moving to the Edge of Chaos with Complexity Theory

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ABSTRACT

Employers require well rounded work-ready graduates with the skills to adapt to a contemporary workplace. Australian universities are responding to these needs through the implementation of Work-integrated Learning (WIL) programs aimed at providing students with the necessary skills, knowledge and attributes employers seek. This paper describes a study of Work-integrated Learning programs in the Human Resource Management (HRM) discipline at a number of Australian business schools. Exploratory interviews were undertaken with a range of stakeholders and examined within a complexity theory lens. The findings suggest that WIL is viewed as a threat to the role of higher education rather than an opportunity. There is increased interdependence and vulnerability within universities and as universities struggle for resources to respond to uncertainties in their ecosystem, they are being forced into making short term changes rather than co-evolving with their environment. By looking at the connectedness and evolutionary properties of the universities involved in the study, a number of recommendations are suggested to encourage universities to move to the edge of chaos, where a university’s full potential can be realised. Complexity theory provides a new way for viewing the intricacies of higher education course development and provides an argument for universities to create enabling conditions to co-evolve with the ever changing and complex world we live in.
INTRODUCTION

Higher education in Australia is being re-shaped in order to provide work-ready graduates sought by employers (Caballero & Walker, 2010; Department of Industry Innovation Science Research and Tertiary Education, 2009). Higher education institutions in Australia are currently being influenced by not only by the recent changes in Government funding policies, but also by employers and students. Australian Business Schools are under pressure to perform and provide graduates and research that closes the gap between education, research and practice in the ever changing and turbulent business environment (Dostaler & Tomberlin, 2013).

Current WIL research in the business area (of which HRM is a subset) reports that business schools are not providing graduates that are ready to “hit the ground running” with the necessary skills to contribute to the workplace upon graduation (Jackson, 2013a; Jackson & Chapman, 2012). As such, business schools, are developing WIL, in an effort to fill the gap in skills, work readiness and essential character development that graduates are currently lacking (Jackson, 2013a; Jackson & Chapman, 2012). In these turbulent times of change WIL programs can provide “…universities with an opportunity to offer a best product that students will appreciate as a pay-off for their investment that will enhance their branding and will attract students by re-marketing of their traditional academic courses as vocationally oriented courses” (Abeysekera, 2006:7).

WIL not only offers universities an opportunity to share knowledge and experience across disciplines (Brown, 2010), it also offers universities a means for responding to the needs of employers and students for more work-ready relevant material to be embedded into the degrees offered. The link between WIL programs and increased employability for students is forcing universities to compete in their offerings of WIL activities. This is an opportunity for WIL to be a major differentiator for business
schools to compete by developing innovative ways of attracting students by meeting both their learning and career needs (Orrell, 2004).

The application of complexity theory in organisational research is a relatively new area. Complexity theory is useful in understanding complex behaviour in human social systems and relevant to this study, presents a unique way of understanding the stakeholder relationships and motivations in the development of WIL programs. Principles of complexity are generic in that they are common to all natural complex systems (Mitleton-Kelly & Land, 2012). However, the nature and context of the complex system needs to be taken into account when using complexity theory to analyse complex phenomenon. Applying complexity theory to a human complex evolving system provides a unique way of viewing patterns of interaction and the relationships in each university within the context of developing WIL programs.

This paper begins with a brief overview of the literature in regards to WIL. This is followed by a description of the research methodology and then the analysis is presented and discussed. Finally, in conclusion the paper identifies the implications of the research and some potential ways forward.

**WORK-INTEGRATED LEARNING**

Previous research provides several different and sometimes competing understandings and definitions of the concept of WIL. McLennan and Keating (2008) argue that across the wide range of Australian universities, WIL is considered to be structured assessable activities that integrate theory and practice, while other researchers define WIL as a range of activities that bring together formal coursework with industry learning in a purposeful way (Brown, 2010; Patrick et al., 2008; Reeders, 2000). The term ‘WIL’ has also been used as an all-encompassing term for different curriculum based approaches that provide “…meaningful opportunities relevant to the real world” (Patrick et al., 2008:13).
The literature is replete with different understandings of WIL. It has been observed that there are two groups when it comes to understanding WIL. There are those authors that view WIL programs as purely work placements, that is, where students are placed in the workplace for some work experience (McIlveen et al., 2009; Tynjala, 2008). It is argued that this view has evolved from the traditional view and application of WIL in disciplines such as sports and nursing (McLennan & Keating, 2008; O'Shea & Watson, 2007; Trigwell & Reid, 1998). There is however another widely accepted view in the literature, where WIL programs are viewed as a range of approaches and strategies embedded within the higher education curriculum (Brown, 2010; Cooper, Orrell, & Bowden, 2010; McLennan & Keating, 2008; Patrick et al., 2008; Reeders, 2000; Universities Australia & Australian Collaborative Education Network, 2015). The research presented in this paper aligns with this view and examines WIL programs in undergraduate HRM curriculum in Australian universities. In this study a WIL program is defined as an “umbrella term for a range of approaches and strategies that integrate theory with the practice of work within a purposefully designed curriculum” (Patrick et al. 2008:iv). WIL programs in this study are viewed as ranging from one subject to a number of subjects that have specific objectives, and deliberately merge theory and practice within a carefully designed curriculum. This definition was selected as it is contextually relevant to the parameters of this study concerned with the development of WIL programs in undergraduate HRM degrees. Furthermore, within the context of higher education, this definition is broad enough so that the research will remain open to the many understandings of the concept provided by the participants of this research. This is significant as throughout the participant’s interviews, the participants may refer to ‘alternative models’ of WIL. The participants are using the term ‘alternative WIL models’ to differentiate WIL activities not involving a work placement from WIL placements.
Another contestable issue concerning WIL programs is that there are often several purposes or intended outcomes of a WIL program found in practice. Barrie (1999) states that it is through WIL programs that involve actual work experiences that students learn to become professionals. He states that to become a professional the student must extend their learning context to include “…some degree of learning in the context of actual work experiences rather than the context of the university classroom or laboratory” (Barrie, 1999:3). Pfeffer and Fong (2002) support this claim by stating that clinical experience provides students with practice fields where they can truly learn business.

Another purported outcome of WIL programs cited in the literature is that they have the capacity to facilitate the development of student’s personal and professional skills, thus increasing their work readiness and employability. Smith and colleagues (2009) examined the relationship between Career Development Learning (CDL) and WIL in the curriculum. The authors found that there is a strong relationship between CDL, WIL, graduate attributes and graduate employability. More specifically, their report argues that CDL and WIL are “…educational vehicles for graduate attributes and graduate employability” (Smith et al., 2009:13). This could be interpreted as CDL being a lifelong process with WIL as a stepping stone to a holistic process of reflecting on skills (graduate attributes), and meaningful work experiences to transform a career over time (employability). Additionally, Patrick et al. (2008) has stated that Australian universities are using WIL linked to outcomes (graduate attributes and employability) to differentiate in a national student centred market. This suggests that WIL aims to enhance the development of graduate attributes, leading to the positive outcome of enhanced graduate employability, and that universities are using this link and increasing the development of WIL programs in order to positively influence their student enrolments. This view of WIL was recently
supported by a ‘National Strategy on Work-integrated Learning in University Education’ report which states that “WIL is aimed at improving the employability of the graduate” and that WIL is a coherent strategy that builds workforce capability, skills and individual prospects (Universities Australia & Australian Collaborative Education Network, 2015:1). The national strategy aims to not only increase opportunities for WIL in university education but will “focus effort, and engage government and other stakeholders in developing the knowledge, skills and productive capacity of our workforce; build practical partnerships - between employers and universities; and lay the groundwork for deeper collaboration on research driven innovation and growth” (Universities Australia & Australian Collaborative Education Network, 2015:3). The following section addresses WIL programs in the context of business schools.

**WIL in Business schools**

Traditionally, WIL programs have been available for students enrolled in the degrees of sport, engineering, nursing, midwifery, medicine, law and education (McLennan & Keating, 2008; Trigwell & Reid, 1998). Changes in government funding, industry and student needs, has motivated significant growth in WIL program development across disciplines more broadly, including the growth of WIL in business degrees. The development of WIL programs in business is becoming increasingly important as research has identified skills gaps in business graduates (Jackson, 2009, 2013a; Jackson & Chapman, 2012). Industry opinion has deemed Australian business graduates as not being ‘job ready’ and lacking essential soft skills or employability skills since the 1980s (Jackson, 2009). So it is no surprise that more recent research continues to find dissatisfaction among employers with business graduates’ ability to effectively apply disciplinary knowledge, and generic skills in the workplace (Freudenberg, Brimble, & Cameron, 2011; Jackson, 2009, 2013a, 2013b; Jackson & Chapman, 2012).
WIL programs are often aimed at providing real world experiences and thus present challenges for business schools that currently face new demands and stakeholder expectations in an already resource scarce sector (Patrick et al., 2008; Universities Australia & Australian Collaborative Education Network, 2015). An Australian study of 211 managers/supervisors of business graduates, and 156 academics teaching business units has identified that “although graduates are confident and proficient in certain non-technical skills, they are deficient in vital elements of the managerial skill set” (Jackson & Chapman, 2012:95). The skills identified as lacking in business graduates included: leadership, critical thinking, self-reflection, conflict management and decision making skills (Jackson & Chapman, 2012). The impact of these skill deficiencies is the development of an “inadequate cohort of future managers, potentially devastating in the face of beleaguered economies still recovering from the global financial crisis and growing competition from the east” (Jackson & Chapman, 2012:109). It is argued herein that by looking at universities as complex evolving systems, we can understand their current operational state and learn how to create enabling conditions to co-evolve with the external environment to support managers into the future.

METHODOLOGY

Study participants were identified through a preliminary review of curricula on Australian university websites of undergraduate HRM programs. This aided in identifying four key stakeholder groups (academics, careers advisor, professionals and students), and nine Australian universities relevant to understanding the design and development of WIL programs in HRM undergraduate degrees within business school. The universities that agreed to participate in the research were chosen not only because they agreed to participate but because they each have some form of WIL program in their HRM related courses which is integral for comparative purposes.
Both purposive and snowball sampling techniques were utilised in this study. Purposive sampling is a form of non-random sampling that involves the selection of a sample with a particular purpose in mind (O'Leary, 2010). Purposive sampling was used to identify participants from each stakeholder group within the related WIL experience from within the nine relevant Australian universities. Using university websites, participants were targeted as a result of their significant characteristics making them part of a particular stakeholder group. Most of the already active participants were happy to refer someone else suitable for the study, therefore snowball sampling was also utilised. Snowball sampling is where participants involved in the study recommend or refer other people to become participants in the study (Richards & Morse, 2013). The sampling was purposive in that the participants needed to belong to one of the identified stakeholder groups relevant to the study, and snowball because potential participants were also contacted through references from current participants. The table below presents the characteristics relevant to the identification of participants for each of the stakeholder groups.

**Insert Table 1 Participant characteristics**

A total of 38 individuals participated in the study. The participants were comprised of 12 academics, 8 careers advisors, 10 professionals and 8 student stakeholder participants from nine Australian Universities. Individuals were given a choice to participate in the research or withdraw from the study at any time. Semi-structured interviews were conducted and all interviews were recorded and transcribed for accuracy (with permission from participants).

The participating universities characteristics include membership to the Group of 8 and or Innovative Research Universities (IRU) and most ranked as 4 or 5 star in the 2015 Australian university rankings (Australian Education Network, 2015). Included were both single and multi-campus universities with a focus on technology application and design, and creative approaches to education and research. Several of
the participating universities emphasise a greater focus in their courses on local and international community and industry engagement, so as to ensure graduates are well prepared for the workplace.

**Analysis of the data: applying the principles**

This study adopts the principles of complex evolving systems established by Mitleton-Kelly (2003b) for applying complexity theory to organisations. The application of complexity theory to organisational research is a relatively new phenomenon. Theories of complexity can offer new ways of viewing and managing organisations. Mitleton-Kelly (2003b) offers one way of viewing organisations where they are considered to be complex evolving systems (CES). Viewing organisations as CES requires appropriate tools for studying and analysing them. As such Mitleton-Kelly (2003b:41) provides 10 principles that serve as “an explanatory framework that helps us understand the behaviour of a complex social (human) system”. These 10 principles are connectivity and interdependence, co-evolution, far-from-equilibrium, historicity and time, space of possibilities, feedback, path-dependence, self-organisation, emergence and the creation of new order. By considering organisations as complex systems in their own right, Mitleton-Kelly’s (2003b:43) principles are viewed as ‘transitional objects’ that “help the transition in our thinking when faced with new or difficult ideas or concepts”.

The semi-structured interviews were coded in two ways. Firstly, transcripts were input into NVivo 10. They were reviewed and analysed for patterns of similarity between participants’ dialogue and for connections with the reviewed literature relevant to the study. As the themes started to emerge, the transcript sections were highlighted and put into ‘nodes’ which act as containers for all information relating to that theme.

The second phase of coding the interviews involved reviewing both the transcripts and already themed node containers for patterns congruent with complexity theory.
principles. Shaped around the principles of complexity, a separate list of nodes was developed. By reviewing both what was already coded in the first phase of nodes, and the transcripts individually a second time ensured that nothing was overlooked in terms of understanding the complex evolving system that was being studied.

**MOVING TO THE EDGE OF CHAOS- THE APPLICATION OF COMPLEXITY THEORY**

This paper presents the analysis applying four of the ten complexity principles of connectivity, far-from-equilibrium, co-evolution and space of possibilities. These four principles provide insights into the current state of the complex evolving systems of a university relative to understanding how business schools can move to the edge of chaos by creating enabling conditions. Future papers will present the results of the analysis of the remaining six complexity principles.

**Context**

This study viewed WIL in undergraduate HRM as embedded within the complex evolving system (CES) of a university which is in turn part of a larger ecosystem. This means that there are several open systems interacting with each other, all having a degree of influence over the development of WIL in HRM degrees in Australian universities. Each individual university exists within an environment of other Australian universities with both similar and different characteristics. Figure 1 below, the model of the study, provides a diagrammatic depiction of the study of WIL in HRM within the nine universities whom participated in this study. The circle on the left hand side of the figure represents the larger social ecosystem of WIL in HRM degrees with an individual university located in its centre. Essentially, this circular figure within the model illustrates how each individual university in the Australian Higher education sector interacts and operates within its environment. Each participating university in this study is an individual system co-evolving within the larger social ecosystem. Although there are individualities that characterise each
university, overall there is sufficient homogeneity in the evolution of the participating universities to propose that they are viewed as a subset of the whole. The model of the study is referred to throughout the following analysis.

**Insert Figure 1 The model of the study**

**Connectivity and interdependence**

Connectivity and interdependence must be understood for a CES to be successful (Mitleton-Kelly, 2003a). Connectivity and interdependence in a human CES, such as a university, can be analysed by studying the inter-connectivity of the individuals within the system, and the relatedness between the CES and its environment.

**Inter-relatedness of individuals within a system**

The interrelatedness of individuals within the CES was explored by examining stakeholder (academics, students, careers advisors, and professionals) conceptualisations of work-integrated learning and the linked concepts of graduate attributes and employability. Graduate attributes and employability were identified in the literature as having an inherent link to WIL programs (Patrick et al., 2008; Smith et al., 2009). The four stakeholder groups exhibited several different levels of connectivity. A comparison across stakeholder groups revealed that the stakeholders are highly connected in terms of understanding and describing WIL, however their understandings are disconnected when describing graduate attributes and employability. The connectivity between the stakeholder groups discussed in this paper is concerned with the interrelatedness in regards to work-integrated learning programs. The other two elements of graduate attributes and employability will be addressed in more depth in a subsequent paper.

The stakeholder participants conceptualised WIL in two ways: a broad approach to learning and teaching, and curriculum-based placements. This aligns with the definition of WIL offered by Patrick et al. (2008:iv) and recently supported by the
National WIL strategy (Universities Australia & Australian Collaborative Education Network, 2015). Patrick et al. (2008) describes WIL programs as a range of approaches designed within the curriculum that integrate theory and the workplace. In this study the stakeholders shared an understanding as a program that occurs within the curriculum. This is in contrast to some previous research that suggests that WIL programs are embedded in the experience of work, which includes learning that occurs totally independent of studies (McIlveen et al., 2009; Tynjala, 2008).

Relevant to WIL development is the outcome of a pathway to employability which is inherent in the acquisition of a set of graduate attributes or capabilities that attempt to ensure the work readiness, and therefore employability of a student (McLennan & Keating, 2008; Oliver, 2010). In this study it was found that stakeholder participants had a shared understanding of WIL, however, their understandings of graduate attributes and employability were vastly different. This suggests that the inherent link between WIL, graduate attributes and employability that has been identified in the literature is somewhat disconnected within the university system. This presents an issue. If there is no shared understanding between stakeholder groups of graduate attributes and employability, how can WIL courses be developed when no one can agree on what the graduate attributes and employability skills that are needed should be? This finding is in contrast to research which has found significant links between WIL, graduate attributes and employability.

**Relatedness between human social systems**

Another component of assessing connectivity is the relatedness between human social systems (Mitleton-Kelly, 2003b). This was explored through the relatedness between universities and the environment. There is a strong connection between the related human social systems of universities, the higher education sector, industry and the Australian government. The Australian higher education sector is managed by both national and state government policies. Therefore, universities have to adhere to
specific standards in order to be eligible for funding (Higher Education Support Act 2003, amended to the Higher Education Support Amendment Act 2013) and are managed by threshold standards overseen by the Government agency, Tertiary Education Quality Standards Agency (TEQSA). This relationship between the government and Australian universities displays a high level of connectivity and interdependence between systems. This connectivity and interdependence is represented by the light blue circle in figure 1.

However, high connectivity and high interdependence do not always lead to positive outcomes. Mitleton-Kelly (2003b) states that high connectivity and high interdependence between related systems leaves the entire system open to wider ripples of disturbance, as when one entity makes a move this affects all other related entities. For example, the Australian federal government legislation (Higher Education Support Amendment Act 2013) prompting student centred funding, along with the ambition to increase the educational attainment of the population, places emphasis on universities to find new ways to be competitive in the new consumer driven market (Ernst & Young, 2011). This has affected universities by increasing student enrolments and by giving students more flexibility in university choice. Therefore, universities need to be more flexible and sensitive to the needs and wants of students when designing and developing their programs, as students now expect a payoff from their investment in higher education (Abeysekera, 2006).

Australia’s higher education system is also highly connected with society by contributing to the future of the nation’s prosperity. This is achieved through a strong value for learning and promotion of the pursuit and transmission of knowledge, by enriching individuals so that they may maximise their potential “both in a personal sense and in terms of their capacity to make a productive contribution to society” (Nelson, 2002:1). This suggests that when one system (Higher Education sector or community) takes action, this will affect any other closely connected entity (Higher
Education sector and community). The recent national WIL strategy also emphasises this connection (Universities Australia & Australian Collaborative Education Network, 2015:1) by declaring it is crucial that linkages between educators, enterprises, and the community are fostered in order to improve the quality and capacity of education systems and to succeed in meeting the challenges and opportunities presented by a rapidly changing global future.

Viewing the Australian higher education system as a closely interconnected system that provides for the future of society, as suggested above, can have both positive and negative repercussions. For example, the reliance of society on the quality of education offered in universities, places an emphasis on the need for funding and training, as well as the assurance that universities are providing quality education. This interdependence flows on to the connection at the level of individual universities and government, as in order to contribute to the fulfilment of human and social potential, government funding and policies are needed for assessing academic quality standards.

The sampled universities represented as CES in figure 1, which are part of, and participate, in the wider higher education sector, are highly connected with the Australian government and the community. The strong connection implies a high interdependence, thus making it easier for information and knowledge to flow between these related human social systems. This high connectivity is represented in the literature emphasising a “synergistic” partnership with a strong emphasis on increasing WIL opportunities that can make students work-ready or employable (Bridgstock, 2009; Business Council of Australia, 2011; Orrell, 2011; Patrick et al., 2008). However, this interdependence also causes the entire system to become vulnerable, as when one related system makes a change all other systems are affected. This vulnerability means that universities need to build connections with other
relevant stakeholders such as private enterprises so that they are not entirely interdependently connected, influenced and affected by Government.

Co-evolution

Mitleton-Kelly (2003b) refers to the work of Kauffman (1993) to describe and analyse organisations in terms of an ecosystem. Kauffman (1993) discussed organisations in terms of organisms that evolve or adapt with, or to, other organisms that are part of its environment. Mitleton-Kelly (2003b:48) states that “an ecosystem is defined by the interdependence of all entities within it” and that “the notion of ecosystem applies both within the organisation and to the broader environment, which includes the organisation under study”.

Co-evolution when applied within the social sciences generally refers to social co-evolution: “the reciprocal evolution of two or more social systems or actors and more specifically, as reciprocal influence which changes the behaviour of the interacting entities within a social ecosystem” (Mitleton-Kelly & Davy, 2013:44). Simply, co-evolution can be described as the way in which “each element influences and is influenced by all other related elements in an ecosystem” (Mitleton-Kelly, 2003b:46).

Co-evolution must be facilitated within an ecosystem so that processes and systems do not “…become legacy in a sense that they are what has been ‘left over’” (Mitleton-Kelly, 2003a:4).

In this study, co-evolution was examined at two levels: within the social system of the sampled universities (endogenous co-evolution), and in terms of the interactions and interdependencies between the universities and their wider operating environment (exogenous co-evolution). These two types of evolution do not necessarily occur separately, “as the endogenous and exogenous processes are necessarily interlinked, and the boundaries between the organisation and its ‘environment’ may not be clear cut and stable” (Mitleton-Kelly, 2003b:48).
Exogenous co-evolution was examined by viewing the interactions between the university and the broader ecosystem. The Australian federal government has and continues to have, influence over the higher education sector. This influence has been in the form of new funding legislation (Higher Education Support Amendment Act 2013) and through the development and management of policies such as the Australian Qualifications Framework, the Employability Skills Framework, and the newly appointed government agency TEQSA. These policies can be viewed as drivers of change for university curriculum including the increased development of WIL activities in disciplines such as business and HRM. Ernst and Young (2011:6) have identified these drivers of change as the ‘democratisation of knowledge and access’ and, ‘the contestability of markets and funding’ arguing that these key drivers will transform the higher education sector.

The community and industry expectations of universities are evolving. With increased market and talent mobility, along with advances in technology, the labour and education market are becoming more competitive (Ernst & Young, 2011). This is placing extra pressure on universities to conform to the needs and wants of the labour market in which students are now conceived as ‘paying customers’ (Star & Hammer, 2008). Australian businesses aspire to be innovative and sustainable organisations, thereby demanding graduates who have the necessary technical, and non-technical skills to understand the dynamics of the workplace and engage with the organisation and its goals (Cleary, Flynn, Thomasson, Alexander, & McDonald, 2007). In addition to the demand for work-ready graduates, it was found that the purpose for attending university is changing. University is now considered an extension of high school, and generation Y is considering the views of their parents when deciding to attend university. Several participants support these arguments. Consequentially, industry and community expectations are influencing universities to adapt their learning and teaching practices. As Academic 2 states:
If we want to get to the crux of the issue lifting the cap on uni [sic] places is why everyone’s rushing towards Work-Integrated Learning. It’s a strategy. Global financial crisis, young people and their parents are shaking in their boots, there’s now a trend back to more conservative degree selections...Therefore parents are evaluating this when they are guiding their children on their career choice.

As the higher education sector transforms, “universities will need to build significantly deeper relationships with industry…” so as to gain a competitive advantage in the now increasingly global mobile and volatile market (Ernst & Young, 2011:11). This increase of industry based learning (WIL) is a result of the decisions of the Australian government, the Australian community and industry influence, and the strong connection between universities and the higher education sector. Jackson and Chapman (2012) describe this interdependent relationship between curriculum development in higher education and industry as largely reactive. They state that “industry actively dictates required graduate outcomes to universities through professional association accreditation criteria and, in Australia, the development of learning and teaching academic standards for undergraduate programs” (ALTC, 2009 in Jackson and Chapman 2012:109). As a result of the needs of the external environment including industry peak bodies in the higher education sector, universities are being forced to adapt their courses to new demands. Consequentially, some academics have stated that they have had to adapt their WIL courses and develop alternative WIL models. Academic 11 states:

They [university] are not going to throw any resources at it. So what I have done then to be creative, I have said I cannot sustain this model the way it is running so let me think of more creative ways of having a community engagement type of activity built into the units where the community comes here instead of sending the kids out.
This strategy is in response to the increased size of student cohorts, the limited resources available, including the lack of businesses willing to host students in their organisation and the need to remain competitive within the higher education market. However, alternative models of WIL have been suggested to be problematic. According to Academic 11 and 12, alternative models of WIL are less beneficial to the students learning experience.

*It’s a creative way of solving my numbers problem without resources, but to me it’s watering down the intent of Work-Integrated Learning, but I have had to do a work around because I am not getting resourced (Academic 11).*

*...there has suddenly been a massive interest in it and I think a very quick push to put things into place so I think it has good intentions but my worry is in the rush to implement things people might not be designing it to its fullest potential for the student experience (Academic 12).*

Academics 11 and 12 are suggesting that some alternative WIL activities do not carry the same benefits that curriculum-based placements claim to provide.

As universities are viewed as a co-evolving exogenous system, there will be implications for the development of less beneficial forms of WIL. It could be suggested that the alternative less beneficial forms of WIL that do not provide a placement or community engagement project, will affect enrolment numbers for that university as pointed out by participants in this research and supported by previous research which has stated that universities are using WIL linked to the outcomes of graduate attributes and employability to differentiate them in the higher education market (Ernst & Young, 2011; Patrick et al., 2008). For example, a combination of student centred funding systems that give increased university choice to students, and alternative ‘watered down’ subjects (Academic 11) being offered by a university may negatively affect that university’s competitiveness and attractiveness to potential students.
Co-evolution can also depend on the level of connectivity and interdependence within the ecosystem. In this study, endogenous co-evolution refers to the co-evolution of individuals and groups within the CES. Through the evaluation of the connectivity and interdependence of the four stakeholder groups, it was found that there were varying perceptions of WIL in HRM. The stakeholder groups were found to be highly connected in terms of conceptualising WIL and understanding its value in HRM degrees, however a level of disconnect was evident in terms of describing graduate attributes and employability. This suggests that stakeholders within the social system of the university are not co-evolving in the sense that their perceptions of WIL as a process with graduate attributes and employability exhibit a disconnection. This is problematic as co-evolution within an ecosystem must be facilitated so that processes and systems do not become legacy. The link between WIL programs, graduate attributes and employability needs to be shared because if there is no shared understanding of these linked concepts, WIL programs will fail to be developed in a way that ensures students have the opportunity to develop their repertoire of skills including graduate attributes and their employability in the workplace. Therefore, connectivity within the university needs to be fostered so that graduate attributes and employability do not become legacy in the sense that they are left over and not considered in WIL development. This is important for the process of developing WIL activities in the HRM curriculum, as it is a new endeavour and any processes for doing so should be valued as it was also identified by participants that the nature and complexities of HRM is currently undervalued and therefore gaining less attention in terms of developing the WIL curriculum. The benefit of this connectivity will be that the relationships between all stakeholders will become stronger, so teams will learn to operate more efficiently and this efficiency can be disseminated throughout the entire system, thus improving the overall performance of the larger ecosystem.
Co-evolution can become a reactive process and change its emphasis from ‘co-evolution with’ to ‘adaptation to’ a changing environment (Mitleton-Kelly, 2003a). When viewing change as ‘adaptation to’, the CES and the environment are more likely to be viewed as separate entities, thus any strategy undertaken by the CES is a response to the changing environment (Mitleton-Kelly, 2003a). In this study change is viewed as an adaptation to the changing environment. This is because the environment and the complex evolving system are currently being viewed by the participants as separate, and therefore any change or strategy that is implemented within the university is viewed as an adaptation to the external environment. Academic 2 describes below a sequence of events that led to the adaptation of a ‘strategy’ of WIL in their university as a result of external changes in the environment:

A colleague of mine explained it to us in the faculty the other day that if you are in the business of left handed basket weaving you are not going to have students anymore. They are going to come back to the core disciplines where they feel assured that they will achieve work. Therefore, parents are evaluating this when they are guiding their children on their career choice. The students themselves are looking around and thinking ok what lifestyle can I achieve? Most people are starting to say do I get a job at the end. When I went to uni [sic] I didn’t ask that.

**Far-from-equilibrium**

When an organisation is pushed far from its established ways of working by an external constraint (for example government policy or industry demand), it reaches a point where the organisation can maximise its potential by being open to exploring new structures and ways of working represented in the model as the dotted line noted as the ‘edge of chaos’. ‘Far-from-equilibrium’ refers to the point in an open system where the system is pushed far from its stable state or established norms where new structures and order are created (Mitleton-Kelly, 2003b). Throughout this process
several distinctive properties of a complex system ensue. When the external constraint puts pressure on the system, the system spontaneously self-organises into right or left handed ways of operating. From this chaos “the system has emerged as a higher level system with order and structure” and although the external constraint will instigate the change, the direction in which the system self-organises is unpredictable and uncontrollable (Mitleton-Kelly, 2003b:10). Therefore many possible solutions may arise. When the individual elements of the system interact and behave in a coherent manner, this is an example of ‘emergent behaviour’. Emergent behaviour occurs when micro level elements of the system interact in a coherent manner to create a new order. This is a distinctive feature of a complex system.

As noted above, the emphasis of the co-evolving ecosystem of WIL programs in HRM in this study is of ‘adaptation to’ the exogenous environment. Australian federal government legislation, community and industry expectations, and the competitiveness of the higher education sector, along with globalisation and changes in technology, have had an impact on the types of courses being developed by universities. In this regard, WIL is the result of the university being forced on to the edge, the far-from-equilibrium state where the constraint applied is the exogenous environment. The co-evolving external environment has increased the interest in the development of WIL in courses more broadly than the traditional disciplines in which WIL is an established part of the curriculum (ie: nursing, engineering, midwifery and teaching) (McLennan & Keating, 2008). Fundamentally, universities are being forced to adapt to the changing external environment by finding new ways of operating.

The increased pressure to develop and implement WIL into all education areas in universities is forcing the system to operate far-from-equilibrium. Mitleton-Kelly (2003b:51) states that “when a social entity (individual, group, organisation, industry, economy, country) is faced with a constraint, it finds new ways of operating, because far-from-equilibrium (established norms) systems are forced to experiment and
explore their space of possibilities, and this exploration helps them discover and create new patterns of relationships and different structures”. It is on the edge far-from-equilibrium that self-organisation and emergence can occur. A robust organisation is argued to have a high degree of self-organisation and is comfortable with the uncertainty which emerges from the self-organisation within the organisation (Mitleton-Kelly, 2003b) (represented as the desired state in figure 1 located on the right hand side of the edge of chaos). In essence, “it (a robust organisation) can live with this type of uncertainty and does not find it threatening” (Mitleton-Kelly, 2003a:3).

**Chaotic edge thinking**

Through the application of the concept far-from-equilibrium in this study, Kuhn’s (2009) complexity metaphor ‘edge of chaos-chaotic edge thinking’ also applies. Traditionally, the edge of chaos in complexity literature is described as the point in an organisation where complex self-organising systems support organisational adjustment and development, thus viewing their environment full of potential (Kuhn, 2009; Lewin, 1999). However Kuhn, Woog and Hodgson (2003) have found it useful to discern an ‘edge of chaos’ attitude from ‘chaotic edge thinking’. Chaotic edge thinking describes a situation where people being at the edge of chaos can feel they are in a potentially dangerous and anxiety provoking situation (Kuhn, 2009). This is the point that the CES has reached which is depicted as the area titled ‘chaotic edge thinking’ in figure 1. Chaotic edge thinking is holding the CES back from reaping the benefits of an edge of chaos perspective.

The career advisors, professionals and student stakeholder groups interviewed view WIL as being “full of potential”. They were comfortable with the uncertainty within universities brought about by the increased development and implementation of WIL, thereby supporting the far-from-equilibrium state that universities are operating in. This potential was described by a careers advisor, a student and a professional as:
The benefit of WIL is gaining practical experience so that it is an opportunity for them [students] to practice what they have learned in real life... but a bigger thing for me is actually to just go into the unknown, uncertainties...
(Careers advisor 8)

I think that you gain personal value out of it [WIL]... Just knowing that you understand the concept and you can integrate your learning. It’s not just trying to find a job all the time. It’s so much more (Student 3).

The more you have been exposed to different elements, the wider your knowledge base is (Professional 8)

It is clear from these above statements, participants view WIL as being full of potential in terms of the personal learning experiences gained, the ability to be comfortable with uncertainty and change, and the opportunity for exposure to many different elements for learning. This ‘full of potential’ perspective is also evidenced in the literature in relation to employability and work-ready graduates. Cooper, Orrell and Bowden (2010) also state that WIL programs can provide benefits including the development of proactive, adaptable and responsible individuals.

Although WIL is viewed by careers advisors, students and professional groups as the force currently moving universities to operate in a space of full potential, the academic group showed characteristics of ‘chaotic edge thinking’ in their language which is stabilising the system and not allowing the system to evolve and move forward. Academic respondents suggested that WIL is a threat to the role of the university in the higher education sector. This chaotic edge thinking has “organisations perceiving themselves as being under threat from almost any change or perturbation and behaving in ways designed to minimise the threat of catastrophe” (Kuhn, 2009:60). Academic respondents identified the system (university) being in a state of change as a result of the increased development and implementation of WIL more broadly in education. Academics have significant power over the push-pull of
the system at the edge of chaos as they play a direct role in developing WIL programs. For example, Academic 8 stated that:

...students are there [at university] to learn how to work. They are not there just for a liberal education which might have been the rightful role of the university 40 years ago, but we have to get real. The same as we tell our customers to get real. The world has shifted.

The academic stakeholder group discussions about the role of WIL suggest that WIL is having a negative impact on the role of the university as an educational provider. As a result of the increased enactment of WIL within universities, the academic group suggested that the role of universities in the higher education sector is threatened. For example, Academics 4, 5 and 11 elaborated this and stated that:

We're becoming more work focused and that makes us look more like a training institute. I think some people may perceive that if we’re doing things like making students work-ready then we’re no longer a university, because universities are perceived as being thinking institutions. Most courses weren’t designed to help people to be work-ready (Academic 4).

Of course this is not the tradition [WIL activities]. Education is a very conservative industry. These sorts of changes would have an impact on self-seeking organisations like universities that do not wish to change too rapidly. This is too radical for them but quite beneficial to students, quite beneficial to industry (Academic 5).

I think universities have lost the reason that we were here for, we are here to be at the cutting edge of technology change or of innovations, well actually we are catching up if we are using the community to serve us, and I think that that’s the role of TAFE or when we used to have the college, colleges of
advanced education, maybe that is where the vocational stuff is at, I don’t know that it really does sit at university (Academic 11).

These statements suggest a negative view of WIL in universities. Academics have also described the university landscape primarily as bureaucratic, rigid and traditional and the bureaucracy of the system as having restricted their choices for course design. They also articulated that the rigid university environment was having an impact on how they interact and communicate with industry. Therefore, not only is the university landscape affecting course design and collaboration with industry, the university landscape is influencing the teaching practices of academics. Two academics and career advisors suggested that it is also the expectations of the community and the Government in the landscape surrounding the university that is further influencing the decisions and new ways of operating. It was also noted that communities are expecting work-ready graduates and this is pushing undergraduate degrees to structure WIL programs into the curriculum against the traditionalism of academia.

*Universities really have to think what we are here for... once again it is [University courses design] driven by Government agenda, by the year 2020 they want 60% of students from high school to have a degree, so that means 40% wont and that is wrong, that’s not normal. So what is going to happen, we are dumbing down our degree. I have been here for 10 years and I have seen that, I have seen the students that used to come and what we have now and we are lowering our standards all the time. So whilst the published data may be 83 I see lots of transcripts with 60 on them (participant is referring to university admission scores).*

It is argued that a robust organisation embraces the potential in uncertainty and change (Mitleton-Kelly, 2003b), thus the perception of WIL as a threat expressed by academics will have an effect on the actions taken when operating far-from-
equilibrium. This is congruent with Rook’s (2013) mental model conceptualisation. The negative shared understandings about the role of WIL will affect universities in that stakeholders may resist the new ways of operating and design ways of minimising the perceived threat. This is because the established norms and ways of operating are significantly stronger and therefore the CES may remain stable and cease to explore its space of possibilities and operate far-from-equilibrium. The perception of WIL being viewed as a threat is reflected in Billet’s (2009:827) view that WIL in higher education is considered by educators to be the “antithesis of higher education”.

**Space of possibilities**

In order for an organisation to thrive and survive, complexity theory suggests exploring the space of possibilities by being open to trying many strategies (Mitleton-Kelly, 2003b). Complexity theory also suggests that a single optimum strategy is neither possible nor desirable, as when the specific conditions from which that one strategy was thriving, changes, the strategy is no long optimal (Mitleton-Kelly, 2003b). Therefore, for an organisation to be sustainable it must continuously scan the landscape and try many different strategies, and consider having more than one strategy evolving simultaneously (Mitleton-Kelly, 2003b). Having more than one strategy evolving at a time ensures that an organisation will be prepared and flexible when faced with an unstable and rapidly changing environment. In addition, exploring the space of possibilities by being open to trying different strategies supports co-evolving with a changing ecosystem. This space is depicted on the right hand side of figure 1.

As complexity theory advocates that having one optimum strategy is not desirable, it is suggested here that more than one strategy will ensure that universities thrive and survive within an unstable environment, such as the current climate. Multiple WIL strategies can be achieved by considering the ‘adjacent possible’. The ‘adjacent
possible’ principle considers alternate ways of doing somethings, reorganising the already available resources in a new and novel way (Mitleton-Kelly, 2003b). The benefit of considering the adjacent possible is that the possibilities are unlimited, because once the current adjacent possible has been realised, a new adjacent possible becomes feasible from the novel discoveries found in the former adjacent possible (Mitleton-Kelly, 2003b). This is depicted by the infinity symbol in the study of the model. Academic 11, as quoted below, describes a situation whereby the ‘adjacent possible’ has been considered:

For another subject what I have done is that we are actually going to take students into the city to go on a little tour of a Government agency and for the other 3 visits the community will come here and they will be not-for profit organisations, talking about issues and then students in groups have to solve the issue. So it’s a creative way of solving my numbers problem without being resourced.

It is important to note here that by considering the adjacent possible one is looking at what resources already exist when considering new courses. This approach may ease some of the burden discussed in terms of resource challenges (Lawson, Fallshaw, Papadopoulos, Taylor, & Zanko, 2011; McLennan & Keating, 2008; Patrick et al., 2008). In essence, universities should consider using the already available resources to create new ways of providing WIL experiences that are sustainable and ensure that what is being provided is not less beneficial than a work placement.

When considering the concept of space of possibilities, it is also clear that academics are using negative language in describing industry’s role in WIL and the lack of resources or support being made available. As Academic 4 states:

I think there is a little bit of a general lack of commitment by organisations in general. I don’t think it’s just HR. To actually help and support universities to get students to be work-ready. That they just want to take someone from
the university who has graduated but they don’t actually put anything back into the universities in terms of that help and support, the work placements, that type of thing.

This negative language used by academics to describe the role of industry professionals could be helping to maintain stability in the university in several ways. Firstly, stability is maintained through a restriction on the range of WIL models being developed because if it is viewed that employers are uncommitted and unwilling to participate in the development of WIL programs, then more on campus WIL models may be considered. This negative language or ‘chaotic edge thinking’ is ensuring that a university’s space of possibilities is not being explored, suggesting that the system is equalised, and therefore not operating far-from-equilibrium. Secondly, the negative language exhibited in many academics statements may also be influencing their perceptions about other elements of WIL development, including the challenges experienced when implementing WIL or vice versa. If all stakeholders view employers as uncommitted, unwilling to participate and work together to deliver WIL activities they will view placement host organisations as being unavailable, thus suggesting a lack of resources being a challenge when implementing WIL. Academic 8 provided another example of negative language stabilising the system:

> Our academics here don’t want to acknowledge that [the need to change the way we educate people]. That’s why they don’t change their behaviours. That’s why they are happy in their own little ruts. I think I’ve told you, I’ll be publishing some papers this year. My colleague says lets research and I say what for. Who is going to use it? Who wants to know? That’s not the point. The point is publication. That’s what we are here for is to publish. It doesn’t matter who reads it or not. He’s a lovely person and I love working with him but we have this distant review about it. I’m the pragmatist. I’m saying what the hell are we doing this for? He’s saying because this is what we do. We
The quote above describes how in the participant’s university, academics view that traditional ways of doing things prevail. It is evident from this quote that the traditional way of operating is held deeply within the academic’s identity. Academic 8 has quoted a colleague expressing that what they do is a result of knowing it is ‘what they are here for’. It is therefore no surprise that WIL is viewed as a threat because it is different to the traditional ways of operating.

**Summary**

The nine universities included in this study exhibit varying levels of connectivity and interdependence between stakeholders. There was a stakeholder disconnect evident in their understandings of the developmental elements of university programs (graduate attributes and employability). The CES was identified as co-evolving, however with an emphasis of adapting to the external environment rather than evolving with. This means that changes happening at the level of the university are a short term adaptation to the environment. WIL was identified as an outcome of the CES moving far-from-equilibrium, however the negative chaotic edge thinking of the academics is threatening the evolution of the CES, as it has stabilising affects that may mean the full potential of exploring the space of possibilities may never be realised. This along with the bureaucratic, rigid and inflexible state of the landscape identified by the stakeholders is having a negative effect on course design and collaboration with industry. This raises the question: with the conditions of the CES inhibiting the evolution of the university with its external environment, can new innovative ways of working and relating be developed? Can business schools use complexity theory to move forward to the edge of chaos? The answer is yes! Managers and universities are not completely helpless and at the “mercy of the system” (Richardson, 2008:13). There are many ways or opportunities for universities to affect organisational
behaviour within the system. The following section refers to ways for universities to move forward and affect positive organisational change.

THE WAY FORWARD

Working with Mitleton-Kelly’s (2003a:3) hypothesis that “a robust organisation evolves its social and organisational relationships, and is capable of guiding and supporting its co-evolution with a changing environment”, this section provides an argument for the development of the necessary enabling conditions in universities to facilitate co-evolution with their environment. Mitleton-Kelly (2003a) suggests that through creating the necessary conditions within the organisation, ‘organisational fitness’ can be achieved. ‘Organisational fitness’ refers to the ability of an organisation to survive through interactions with their environment (Kauffman, 1993).

Managing an organisation as a CES requires the organisation to want to experiment, spend some time in understanding the state of the landscape and its capabilities, learn how to set up the natural experiment to facilitate its success, and it “needs to create an enabling environment that will help achieve its goal, while understanding that the goal itself may change” (Mitleton-Kelly, 2003a:4). According to Mitleton-Kelly (2003a; 2003b) this can be achieved by complexity researchers working with the organisation to co-create the necessary conditions through helping the organisation identify the conditions that are inhibiting the success of the organisation, or organisations themselves can learn to create enabling characteristics for success. In both instances, it is argued that a successful CES facilitates and encourages the emergence of new ways of working and relating, new organisational forms, information and knowledge sharing, self-organisation, and co-evolution (Mitleton-Kelly, 2003a). The CES is encouraged to explore its space of possibilities, understand its own connectivity and interdependence within the system, and learn to cope in unpredictable environments through developing diversity including people, cultures, products and markets (Mitleton-Kelly, 2003a).
This suggests that for universities to move to the edge of chaos where full potential can be realised, many conditions need to be fostered. Connectivity between stakeholders needs to improve so that the system can learn to co-evolve with its environment rather than adapting to its environment. If connectivity and self-organisation were to be encouraged throughout universities, it would assure that emergent properties and patterns would increase, and in turn, the university would co-evolve. As the university reaches a far-from-equilibrium point, it should be encouraged to explore the space of possibilities and adjacent possible, so as to enable the university to break through its traditional way of doing things. A supportive and positive culture between academics must be fostered so that uncertainty and change is embraced and a positive language space is cultured. As the system reaches the edge of chaos point it needs to move through the funnel to the right hand side of figure 1 and explore the space of possibilities and view the environment as being full of potential.

It is recommended that business schools use WIL as a vehicle for increasing their competitiveness and relevance in the market through providing timely education that students expect in order to be work-ready or employable upon graduation. This can be achieved through exploring their space of possibilities more deeply, limiting dependence on government for funding and looking to industry, the community and student to understand their needs, wants and expectations. WIL program models in universities should be beneficial and offer students variety and flexibility without offering watered down alternatives. Connectedness must be fostered through networking and communication at all levels of the complex evolving systems, including external and internal environments. Most importantly, academics need to be comfortable with being uncomfortable and embrace uncertainty, so that their chaotic edge thinking of WIL as a threat does not continue to hinder the evolution of their business school. Through creating these conditions and connections, the complex
evolving system can move to the edge of chaos and sustain the position where its full potential can be realised.
References


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### Insert Table 1 Participant characteristics

<table>
<thead>
<tr>
<th>Group title</th>
<th>Determined characteristics</th>
<th>Number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>Be co-ordinating, lecturing or tutoring in HRM relevant units which include the assessment of students Work-integrated Learning experiences.</td>
<td>12 Participants</td>
</tr>
<tr>
<td>Careers advisor</td>
<td>Participants in this group are involved in the program coordination and managing of the relationships between students, professionals, employers and the university.</td>
<td>8 Participants</td>
</tr>
<tr>
<td>Professional</td>
<td>Be involved in the process and management of undergraduate students undertaking Work-integrated Learning placements while studying a HRM related degree.</td>
<td>11 Participants</td>
</tr>
<tr>
<td>Student</td>
<td>Be enrolled at university in a HRM related undergraduate degree and have experienced a form of Work-integrated learning.</td>
<td>9 Participants</td>
</tr>
</tbody>
</table>
Figure 1 The model of the study