Accelerating supply chain management learning: identifying enablers from a university-industry collaboration

ABSTRACT

Purpose: There is an acknowledged need to advance the supply chain management (SCM) learning agenda, with an emphasis on integration. This research paper discusses an Australian university-industry collaboration aimed at accelerating SCM learning, and offers some insight into models for building a forward-looking SCM.

Design/methodology/approach: The research is an exploratory case study of the university-industry collaboration, using grounded theory methods. The primary data involved 25 interviews with key participants from the university and industry partners, and from the first cohort of students in the undergraduate program developed within the collaboration.

Findings: A theoretical framework for accelerating SCM learning was developed from the case study data; it comprises six constructs that influence, at strategic and operational levels, the acceleration of SCM learning. Four cross-construct categories from the framework that form the cornerstones of accelerated learning are discussed in some detail.

Research implications: The framework facilitates an examination of successes and shortfalls in the case study collaboration, and generates a deeper understanding of critical elements for progressing the SCM learning agenda, and expanding SCM education. As with all qualitative research, the results may not be generalizable; testing the relevance and usefulness of the framework with the field will be an important next step.

Practical implications: As the framework identifies conditions, characteristics and capacities of organisations and individuals that support the acceleration of SCM learning, it may provide assistance in designing future university-industry collaborations for advancing supply chain management learning or in promoting SCM learning optimisation at either the individual enterprise or supply network levels.

Originality/value: The framework identifies critical success factors for alliances and partnerships aimed at accelerating learning in an emerging body of knowledge such as SCM.

Keywords: supply chain management; university-industry collaboration; education; learning

Paper type: Research paper

1. INTRODUCTION

Learning is an extensive topic area, of interest to all disciplines and communities making knowledge claims. Furthermore, it is widely acknowledged in strategic management literature that speed of learning is an important source of sustainable competitive advantage (Senge, 1990; Easterby-Smith and Lyles, 200; Hislop, 2013). Although most research on improving learning is conducted outside supply chain management (SCM), it is as important to SCM as it is to any other field. There are clear strategic imperatives to optimize SCM learning as part of sustaining an organization’s competitive
advantage (Li et al., 2006). If SCM is to maintain its relevance in contributing to organizational competitive advantage, its ongoing development must be underpinned by mastery in key topic areas such as knowledge management (Sangari et al., 2015) and learning (Spekman et al., 2002). It is therefore not surprising that SCM education has become a topic of increasing interest and importance.

The recent intensification of interest in SCM education has brought to the forefront several areas for action, including the need to advance the SCM learning and education agenda in response to a continuing shortage, globally, of skilled SCM professionals (Ozment and Keller, 2011; Sohal, 2013). Within this SCM knowledge advancement context, van Hoek and Wagner (2013) make three important observations:

1. As a profession, SCM is still very technocratic in terms of teaching and research (as evidenced, for example, by SCM academics and practitioners being selected on the basis of their technical knowledge in one aspect of supply chain rather than on their cross-disciplinary knowledge and/or expertise in integrative processes, especially those that reside within the social system).

2. The SCM curriculum needs to progress and expand, preferably using a model of integration with other disciplines

3. A ‘new DNA’ is required for a forward-looking SCM, incorporating change management competencies and soft skills that facilitate holistic perspectives and collaborative relationships.

Observation 1 links directly to the wider topic of professionalism which, like learning, is researched mostly in areas other than SCM. A distinctive feature of professions is their claim to have a discrete body of knowledge for which they hold the expertise (Abbott, 2014). The processes used by professions (including SCM) to develop and safeguard their bodies of knowledge parallel educational processes in that they are both concerned with the creation, capture, organization, critical analysis, accreditation, dissemination and application of knowledge in order to maintain or improve performance. For the purposes of this paper, the term ‘learning’ is taken to mean the practise of some or all of the seven knowledge processes outlined above. University-industry collaboration has long been seen as a means of enhancing learning – that is, ensuring that any knowledge developed adds value when applied in an industry context.

Observation 2 touches on the issue of integrating the various knowledge disciplines that have been at the heart of SCM development. Historical analyses have shown that SCM is multidisciplinary through having drawn its knowledge from other theories and disciplines (e.g. Giunipero et al., 2008). In particular, it is the blending of these areas of knowledge that gives SCM its own theory base. In a
world where knowledge is primarily created and taught in single disciplines there are clear challenges to orchestrating multidisciplinary learning.

Observation 3 deals with soft skills for change management. While this observation builds on the previous two, it also touches on a much wider issue – that of how soft systems skills are viewed in comparison to those of hard systems. Hard systems are closed and they behave in a predictable or repeatable manner whereas, by contrast, soft systems are open and have emergent properties which make them much harder to predict (Spurrett, 2000). These characteristics make it more difficult to devise effective methods for learning soft systems skills. The rapid rate of change in modern organizations is such that SCM practitioners are required to be especially adept at managing complexity and leading the organizational changes required to implement SCM initiatives. Many authors (e.g. Ireland and Webb, 2007; Kwon and Suh, 2004; McCarter and Northcraft, 2007; Simatupang and Sridharan, 2002) have highlighted the importance of various social factors which make it clear that effective supply chain management requires proficiency in soft skills.

While professionalism, integration and soft skills for change management are not exclusive to SCM, their critical importance for advancing the SCM agenda is underlined by van Hoek and Wagner’s (2013) three observations. Addressing the issues raised in the observations requires a combined effort from all key stakeholders – universities, industry, professional bodies, individual businesses and governments. In recent literature on collaborations where key stakeholders have endeavoured to better align SCM education to industry needs (e.g. Lutz and Birou, 2013; Sohal, 2013), there is recognition that no single player has sufficient purchase on the territory of SCM to lead the advancement of the learning/education agenda. An important implication of this acknowledgement is that existing models of university-industry collaboration in Australia (and a number of other jurisdictions) are not producing the necessary shifts in perception and process to achieve timely and effective resolution of the issues to be addressed. This suggests that research into new models is needed, particularly for emerging areas such as SCM where there is not yet an agreed body of knowledge and multidisciplinarity is a key dimension.

This paper presents findings from a case study of a university-industry collaboration in Australia which aimed to accelerate SCM learning. Central to the findings is a framework developed from the data that identifies a set of interconnected enablers for accelerating SCM learning. This framework may cast some light on the design of new models to help build a forward-looking SCM capable of addressing the concerns inherent in the three observations listed earlier.

The remainder of the paper is structured as follows: section two provides an overview of the literature pertinent to SCM learning and to university-industry collaborations; section three presents
background to the university-industry case study and the methodology used in the research; section four presents key findings from the study, focusing particularly on links between the SCM Accelerated Learning Framework which was developed from the data analysis and the three observations presented in section one; section five further elaborates on the findings, including implications of the enablers in the framework and their potential to help inform the development of SCM education and research; and the conclusions presented in section six suggest future actions.

2. LITERATURE REVIEW

SCM Learning

Recent thematic and systematic literature reviews on both SCM in general (e.g. Defee and Fugate, 2010; Harland, 2013; Soni and Kodali, 2011) and SCM learning more specifically (Sohal, 2013), acknowledge a lingering lack of clarity regarding definitions and terminology. SCM continues to be positioned as an emerging discipline (Harland et al., 2006; Soni and Kodali, 2011) with no consensus about how it should be defined (Ballou, 2007; Harland, 2013). While unresolved debate is common where a discipline area is emerging (Esper et al., 2010), a degree of unease has been expressed in some quarters (e.g. Ozment and Keller, 2011; Nilsson and Gammelgaard, 2012) that the ongoing lack of clarity is leading to a reductionist view of SCM, such as considering it to be primarily logistics management, rather than an expansive view that more appropriately reflects its multidisciplinary nature. Knight et al. (2005) and Newman et al. (2009) have advocated taking a process view of SCM to counterbalance the predominantly functionalist perspectives of the preceding decade.

The literature also shows there has been far more research focused on ‘supply chain’ learning than on ‘supply chain management’ learning; that is, the primary research focus has been on learning in and through supply chains (e.g. Bessant et al., 2003; Defee and Fugate, 2010; Lambrechts et al., 2012; Spekman et al., 2002), involving investigations into specific aspects or dimensions of supply chains or supply networks themselves. There has been, by comparison, very little research focused on understanding SCM as a distinct body of professional knowledge, or on how to most effectively teach that body of knowledge in academic and workplace contexts. In other words, the focus has been on learning about single disciplinary functions within supply chains rather than learning about supply chain management in a multidisciplinary, holistic and integrated manner.

According to Giunipero et al. (2008), the key topics covered in SCM research in the preceding decade were ‘traditional’ areas such as quality, supplier development, and social responsibility, but there was growing interest in some ‘newer’ areas including strategy frameworks, trends and challenges, alliances and partnerships, and the efficient exchange of information through Information Technology and e-Commerce. Neither SCM learning nor SCM education made that list and while interest may
have increased a little since 2006, these two areas have continued to lag well behind other topics in SCM research. Within that same time frame, professional bodies such as the Supply Chain Council were calling for a clarification of SCM skills and competency requirements, agreement regarding a common model of SCM roles, and development of the skills and attributes necessary to fulfil those roles (Aquino and Draper, 2008). It is difficult to see how the effective development of appropriate SCM skills and competencies can be expected to occur without an explicit focus on research into SCM learning and education.

Well over a decade ago Lancioni et al. (2001) noted a very limited amount of research into the design of SCM learning programs and suggested this had adversely affected the development of formal tertiary level programs in the SCM area. Within the relatively small body of literature on SCM education, program content has been the dominant focus. Some literature argues for new content areas to be included in programs – such as supply chain agility (Gligor and Holcomb, 2012); supply chain governance (Pilbeam et al., 2012); and supply chain risk management (Lemke and Petersen, 2012) – while other commentators seek to either refine lists of knowledge and skills required of SCM professionals (e.g. Giunipero et al., 2006; Sohal, 2013) or to clarify shifts over time in the distribution of knowledge and skill areas within graduate program curricula design (e.g. Onar et al., 2013).

Lorentz et al. (2013), however, do note a progression from the curriculum ‘content’ focus to acknowledgement of managerial skills and some discussion, at least, of specific teaching methods. They argue for greater integration in curriculum to enable students to acquire a holistic view of the organisation and call for a greater emphasis on ‘soft’ skills development within SCM education. It should be noted there are varying definitions of the scope of soft skills – e.g. personality traits, goals, motivations, and preferences that are valued in the labour market (Heckman and Kautz, 2012); personal qualities, interpersonal skills, and additional skills and knowledge such as cultural awareness, conflict management, responsibility, work ethic, and critical and structured thinking (Shulz, 2008). The call to include soft skills in SCM education has been a recurring theme for some time (Lutz and Birou, 2013; Gravier and Farris, 2008; van Hoek et al., 2002). The fact that these calls are continuing suggests the issue remains largely unaddressed.

There have also been recent warnings that formal programs in SCM are producing insufficient numbers of graduates to meet demands in the short to medium term (e.g. Ozment and Keller, 2011; Sohal, 2013) and that employers are concerned about the level of recent SCM graduates’ preparedness (Lutz and Birou, 2013). The present shortage of highly skilled SCM professionals adds to the risk that a reductionist ‘SCM as logistics’ mindset will be reinforced, with negative implications for the competitive advantage that businesses could gain from other key dimensions of SCM – such as supply network integration and strategy formulation. In noting the increasing portrayal of SCM as a strategic
level concept, Hoffman (2010) points to a lack of strategic orientation and capability in supply chain managers.

The current imbalance revealed in the literature of there being a focus on (individual) aspects of supply chains rather than on (holistic) supply chain management suggests a prevailing belief that gaining a deep understanding of the former will lead naturally to the latter. Such a belief sits on shaky ground, given the observations that SCM research and learning have remained overly technocratic (i.e. functionalist) and SCM needs to be more forward-looking. There is clearly scope, then, to expand the research focus to better address the ‘non-functionalist’ dimensions of SCM, accelerate the development of an agreed SCM body of knowledge, and support more holistic, multidisciplinary approaches to SCM education.

University-Industry Collaborations
The Lambert Review of Business-University Collaboration in the United Kingdom (HM Treasury, 2003) reported that firms and universities are not natural partners due to differences in their cultures and missions. Key among these differences, as noted by Piva and Rossi-Lamastra (2013), is the effects of mission hierarchy; the first mission of most businesses – profit – is the third mission of universities, after teaching and research.

Specific aspects of industry-university interaction which have been viewed as problematic include poor accommodation by universities of structures and processes to properly embed work-based learning within their academic frameworks (Costley and Armsby, 2008), and perceptions that universities are not matching the knowledge and skills outcomes of their programs to the needs of business and society (Al-Turki et al., 2008; Sauber et al., 2008; Business Council of Australia, 2011).

The primary focus of research into university-industry collaborations has been on those involving traditional discipline areas, particularly those areas that are easily measured, such as the hard sciences and technologies (Philbin, 2012) rather than emerging areas. Factors further limiting research into university-industry collaborations include funding regimes (D’Este and Fontana, 2007) and a relatively narrow spectrum of topic areas, such as intellectual property rights and the potential for commercial spin-offs of technical innovations to sustain competitive advantage (Philbin, 2008). The majority of university-industry collaborations focus on the transfer of knowledge or technology from the university to the firm (Philbin, 2008). Very few studies have focused on the role of universities as users of firm-based knowledge (Kutvonen et al., 2013). Moreover, Schofield (2013) notes that most existing literature on university-industry collaboration does not consider knowledge transfer holistically, focusing instead on individual parts of the knowledge cycle.
Perkmann *et al.* (2011) identify four main reasons for individual firms engaging in alliances with universities: to leverage (government) research funding; to access basic scientific knowledge; to use university advice and assistance to improve their problem-solving capability; and to gain generic benefits such as accessing university-created instruments and techniques that enable the development of new technologies and the screening of potential recruits to fill vacancies. Given the relatively ‘functional’ nature of those four motivations, there is clearly room to broaden the research interest by investigating the extent to which university-business alliances could also contribute to deepening our understandings of the learning required for new knowledge areas such as SCM. In arguing for an approach by managers that is both holistic and long-term to develop their understanding of strategic alliance paradigms with a view to better informing decision making, Lowensberg (2010) identifies organizational learning as one of six key ‘motivational paradigms’ which are guiding alliances between individual businesses. The other five are transaction cost economics, resource dependence, strategic choices, stakeholder theory and institutional theory. There is scope, then, to extend the range of research to cover alliances involving universities and businesses where the focus is on learning in emerging knowledge areas.

Rahman and Korn’s (2010) study into the structure of dyadic strategic alliances involving publicly-listed companies in the USA found that the specific alliance experience has a stronger influence on alliance structure than does the actual type of alliance. While the alliances in their study did not involve university-industry collaborations *per se*, it is interesting to note that a key implication of the findings is the relative importance of ‘communal harmony’ against ‘competitive rivalry’. The importance of communal harmony reinforces the set of basic assumptions described by Philbin (2008) which underpin collaborative partnering, including: a view that cooperation is more productive than confrontation; the positive role played by trust in partnering; being open to the need for new attitudes to support partnerships; and the role that awareness of people’s differences may play in the process of managing partnerships.

Challenges and potential barriers to the success of industry-university alliances are also outlined in the literature. For example, Perkmann *et al.* (2011) highlight issues involving the implications of structural differences on the ownership and/or sharing of research results, and the organizational aspects of boundary-spanning – such as regulations regarding funding, or processes established to facilitate technology transfer. Philbin (2008) identifies the need to develop different management practices for the collaborative processes in the face of an evolving university-industry research and knowledge transfer environment. It is hard to maintain the momentum for university-industry collaborative endeavour (Miller, 2009; Sohal, 2013).
With respect to the specific area of SCM, Giunipero et al. (2008) indicate that while there has been some keen attention on alliances by researchers, the principal focus has been on businesses’ alliances with their own supply chain partners. It would appear that the area of SCM alliances involving external partners, such as universities, is under-researched at present. Similarly, learning has not been a major focus of research within the SCM field broadly. Soni and Kodali (2011) found that between 1997 and 2008 empirical research in SCM was primarily concerned with supply chain processes or functional areas, such as best practice, strategic management and logistics.

In summary, the literature on both SCM learning and university-industry collaborations reinforces the relevance of the three observations presented in the previous section. There is clearly scope, therefore, to explore education models that will not only support the development of SCM professionalism through integrated curricula for SCM programs where strategic capabilities and soft skills enhancement are embedded in other key domains of SCM knowledge and skill (that is, models that address context as well as content) but also facilitate greater levels of collaborative working across industry and academe to progress the emergence of a clearer SCM body of knowledge and increase the quality of SCM education.

The next section presents one such case of an industry-university collaboration in Australia, which aimed to accelerate SCM learning.

3. SUPPLY CHAIN MANAGEMENT LEARNING CASE STUDY

Background to the study

The collaboration being studied involved an Australian university (referred to here as Midsize University, or MU) which was approached by a large Australian national transport corporation (called SuperTrans here) to establish an alliance focusing on SCM learning and research. The initial intent was to ensure a continuous ‘pipeline’ of suitably prepared SCM graduates who could, in the first instance, ‘hit the ground running’ and then, as part of a broader workforce development strategy within SuperTrans, undertake research to increase SCM knowledge transfer and innovation. In overall terms, then, the principal aim of the collaboration was to accelerate SCM learning through building an education-focused collaboration.

The context surrounding the study was shaped by two key factors. First, it was SuperTrans that instigated the collaboration. The approach was partly prompted by a sense of urgency – an immediate shortage of skilled supply chain management professionals – but it was also part of a more visionary plan for SCM learning and research that had been forming in the mind of a senior executive from SuperTrans with responsibility for the organisation’s Supply function. As shown in Figure 1, the...
Supply area within SuperTrans was making a conscious and systematic attempt to further develop its SCM capabilities over a fifteen year period based on three five-year plans that foregrounded evolutionary development across three domains – strategy, change management and theory-building.

(Place Figure 1 here)

The outcome of the first five-year plan had been savings of AU$100 million to SuperTrans’ bottom line based on ‘value release’ through applied best practice in procurement, IT and inventory management. Within that first five years SuperTrans had worked largely with its own internal processes across the three areas of purchasing, IT and inventory to achieve the savings. However, given that such high magnitude of value release could not be expected more than once, the quest to create a further AU$100 million in savings required a different strategy and change management process. For the second five-year plan, then, the focus was on open innovation for ‘value creation’ and this was the trigger point for the approach to MU. The idea was to collaborate in further researching and developing SCM knowledge and education which would form an important element of the third five-year plan with an emphasis on ‘value co-creation’ through Service Dominant Logic (e.g. Gummesson et al., 2010).

The second contextual factor was that, just prior to being approached by SuperTrans, MU had been invited to join a small consortium of Northern Hemisphere universities wanting to offer SCM education globally. The approach by SuperTrans helped MU make its decision to enter the SCM education area. It should be noted that MU is a large, long-established, multi-campus university with a diverse student population. The diversity of the University’s international student profile is reflected in the student sample in this study, with students from Australia, Sweden, the Philippines, Malaysia, Zimbabwe, South Korea, China, Thailand, United Kingdom, New Zealand and Poland. The case study reported here involved only the first step in the SuperTrans-MU collaboration. The goal of this step was to develop and deliver an undergraduate SCM program that was closely tailored to SuperTrans’s SCM skill requirements, including a particular focus on strategic thinking and innovation.

Designing the new Logistics and Supply Chain Management major within the university’s existing Bachelor of Business degree involved the development of six new units of study and the use of two existing units. A senior executive from the industry partner was closely involved in developing the content of the new units, teaching parts of the program, offering three non-binding scholarships totalling A$30,000 to attract top quality students, and providing vacation employment to high achieving students.
One of the new modules was an internship which was originally intended to place students for two days a week over one semester within a number of organisations. When the expected arrangements for the internship collapsed very close to its scheduled start, SuperTrans agreed to take all 21 students. This solution required some redesigning of the internship to accommodate the relatively large number of students within a single organisation. As a result, the interns were not placed as extra ‘hands’ within the regular work structures of SuperTrans, as is a common model for internships; instead, they acted as a ‘consultant team’, working in pairs to research issues and problems in two strategically important supply chains which ran across the entirety of the SuperTrans operation. As the culminating activity of the internship, the students developed an integrated corporate-level report on the two supply chains, which they presented to senior managers during a student-led half-day working session at the conclusion of the internship period.

**Research Methodology**

**Research question**

This was an exploratory inductive case study (Stake, 2000) which used some of the procedures associated with grounded theory, particularly the constant comparison method of data collection and analysis, and the development of concepts (Strauss and Corbin, 1990; Corbin and Strauss, 2008). The main research question was:

> What can we discover about the enablers for accelerating learning in the emerging knowledge area of SCM from an industry-university collaboration aimed at developing effective SCM professionals?

**Data Collection and Analysis**

The main source of primary data came from 25 semi-structured interviews conducted during the first offering of the undergraduate program. There were two groups of interviewees: one group comprised four personnel from SuperTrans and MU who had played key roles in the collaboration; and the other group consisted of all 21 final-year students in the first cohort (14 domestic and 7 international), interviewed towards the end of the program, following their internship experience. Additional sources of data included a short written survey of the students immediately prior to the start of their internship, and documentation such as the students’ learning journals, university unit descriptions and assessment outlines. Table 1 provides a summary of the primary data collected in the study.

(Place Table 1 here)

All interviews were recorded and verbatim transcriptions were produced. Each transcript was analysed using the ‘constant comparison’ method (Strauss and Corbin, 1998; Corbin and Strauss, 2008) in which open and axial coding are used to first build phenomena into concepts and then group
concepts with a similar meaning into composite concepts. Each interview was analysed before undertaking the next. To ensure that emerging concepts were understood, different types of questions were asked of the data – for example, sensitising questions such as, ‘What is going on here?’; theoretical questions such as, ‘What is the relationship of this to that?’; and practical questions such as, ‘Which concepts are well developed and which are not?’ (Corbin and Strauss, 2008). Selective coding (McCann and Clark, 2003) was simultaneously applied to help make links among concepts, and enable a conceptual ordering of the data – that is, considering data from varying degrees of theoretical abstraction, the ultimate aim of which was reconfiguration back to a meaningful whole. ‘Saturation’ was reached (that is, no new concepts surfaced) after the 13th student interview. Following saturation, further interviews (with transcript analysis) were conducted to test the robustness of the concepts (Johnson and Duberley, 2000). Independent analysis of a selection of the transcripts was undertaken by a second researcher as a means of checking the analysis for credibility assurance.

Through the open and selective coding processes, and the iterative refining of the concept maps developed during these processes, 14 composite concepts were arrived at. These were further consolidated into six categories (or ‘constructs’, as they have been labelled in this case), as shown in Table 2.

(Place Table 2 here)

The six constructs shown in the right-hand column of Table 2 form the basis of the Supply Chain Management Accelerated Learning Framework (see Figure 2), which was verified by SuperTrans and MU personnel involved in the collaboration.

(Place Figure 2 here)

It can be seen in Figure 2 that four of the composite concepts – capacity to surface and interrogate assumptions; perceptions of ownership and responsibility; commitment to proactivity and innovation; and ability to negotiate, influence and manage relationships – (also shown in bold italics in Table 2) contribute to more than one construct. This will be discussed further in the next section, following an overview of the framework.

4. DISCUSSION OF FINDINGS

This section discusses the framework in the context of van Hoek and Wagner’s (2013) three observations. Before proceeding, it is important acknowledge that when viewed through the lens of
conventional models of university-industry collaboration, where the university is the main knowledge supplier, the first offering of the SCM program examined in this case study was considered a success by all 25 participants interviewed. When viewed, however, through the lens of the three observations, some challenges become apparent with respect to both the program and the collaboration, and these will be discussed.

Framework overview

The framework encapsulates the organisational and individual conditions, capacities and characteristics identified in the context of this case study as being, through their inter-relationship, key enablers of SCM accelerated learning. As Figure 2 shows, the framework is notionally bisected into ‘strategic’ and ‘operational’ domains, represented via the horizontal broken line running through the centre of the diagram.

The shaded oval in the centre of the figure represents research and learning related to SCM as a distinct body of professional knowledge. The top portion of the central oval that sits notionally in the strategic domain (i.e. above the broken line in the shaded rectangle) depicts a strong cross-sectoral foundation with significant input from both industry and the academy to support and sustain the advancement of the SCM body of knowledge and learning agenda. The other portion of the central oval (below the broken line) indicates continuity of that academic and practitioner input to enable ongoing SCM learning and research. Feeding into this ‘learning and research core’ are the six constructs from Table 2, shown in Figure 2 as boxes. While three of the constructs – Interorganisational Congruence, Strategic Coherence and Political Potency – are depicted as exerting their strongest influence in the strategic domain of the framework, and the other three – Structural Flexibility, Interpersonal Acuity and Professional Commitment – are shown exerting their strongest influence in the operational domain, the framework should be considered holistically.

The composite concepts from which each construct has been built determine the basis of that construct’s influence as an enabler of accelerated SCM learning. These concepts are listed inside the relevant construct boxes in Figure 2. The four ‘bridging’ concepts referred to previously are presented as shaded rectangles with a dotted line marking their connections. Both their presence in multiple constructs and the fact that two of them (‘ownership and responsibility’ and ‘commitment to proactivity and innovation’) ‘bridge’ the framework’s strategic and operational domains set them apart from the other ten concepts in the framework, and indicate they warrant special attention.
Constructs exerting strongest influence at the strategic level

There was considerable evidence in the data that supported strong cross-sectoral foundations for collaborative activity to sustain accelerated SCM learning. The concepts contributing to the Interorganisational Congruence, Strategic Coherence and Political Potency constructs (also shown in the top half of Table 2) were identified in the case study as being pivotal in establishing an appropriate stable base on which to both progress the SCM body of knowledge and accelerate SCM learning.

With respect to Strategic Coherence, the categories emerging from data analysis highlighted the importance of visionary SCM leadership in both industry and the university sector if the SCM knowledge agenda is to be clarified and expanded. Several interviewees acknowledged the significance of the leadership shown by SuperTrans in wanting to progress a vision for SCM knowledge that was broader than simply developing an undergraduate program. At the same time, however, it should be noted that the senior executive from SuperTrans was not confident of strategic SCM being well understood throughout his organisation, saying:

If you look at the instruments that come out of the Board at SuperTrans and if you look at their strategy documents, they really just say a few token words [about strategic SCM] but there’s not much action there’ (SuperTrans Senior Exec, Interview 1, p. 26).

Such a comment reinforces the importance of acting on Observation 3 – that is, the need to focus on developing the change management competencies of SCM professionals so they can more effectively foreground the critical role of strategic SCM across all echelons of their organisation.

In relation to the Political Potency construct, many comments from the non-student interviewees referred either directly or indirectly to the current state of the SCM agenda, including mixed reactions to the roles played by relevant professional bodies such as the Chartered Institute for Purchasing and Supply Australia (CIPSA). There were also references made to difficulties, for both individuals and organisations, in attempting to collaborate in a contested field where energy was sometimes diverted away from jointly building an agreed body of SCM knowledge towards jockeying for control of the professional agenda. A number of comments suggested that for organisations to work effectively in such a space, their representatives needed to be of sufficiently high status and have effective skills for influencing and negotiating. There were clear messages that a strong commitment was needed from experienced practitioners and senior managers across organisations to contribute directly to professional learning programs and take greater responsibility for developing future cohorts of SCM practitioners. These data support Observations 1 and 2, highlighting perceptions that the development of SCM as a professional field requires an agenda for research and learning that is more integrated,
less technocratic, and led in a transparent fashion by highly committed senior managers and experienced practitioners willing to work collaboratively.

Data informing the Interorganisational Congruence construct showed that a history of previous links between MU and SuperTrans (e.g. through research projects and advisory board representation) was very helpful in the collaboration, and that there was a degree of shared vision through a mutual desire for the undergraduate SCM program to be forward-looking. However, there was also a strong message about apparent differences in the extent to which the two organisations demonstrated proactivity in developing the collaboration, setting a context for sustainability, and implementing the SCM learning program. The capacity to examine assumptions is an important part of the Interorganisational Congruence construct. For example, the SuperTrans senior executive had expected the university to have both expertise in integrating multidisciplinary learning and a capacity for innovation that would translate at the program delivery level. These expectations were, in fact, untested assumptions and were to some extent unrealised. These findings link to Observations 2 and 3 in that they underline fundamental challenges faced when attempting to develop integrated models, whether these be for learning or other purposes.

Constructs exerting strongest influence at the operational level

Concepts contributing to the Structural Flexibility, Interpersonal Acuity and Professional Commitment constructs (see the lower half of Table 2) were identified in the data as being important for building sustainable input from academics and industry practitioners to the design and delivery of education programs and research projects to advance SCM learning. This is the domain in which industry’s role can make a substantial difference to the advancement of SCM knowledge and learning called for in Observations 2 and 3 – by seeking to develop SCM professionalism through enabling leading-edge knowledge transfer among practitioners and academics, and helping to conduct cross-disciplinary research.

In relation to the Structural Flexibility construct, over thirty percent of interviewees reported instances where willingness and capacity to quickly step outside an organisation’s ‘standard operating procedure’ provided good results – for example, a successful process being established (such as vacation employment for some students) or an emergent problem being solved (such as SuperTrans rescuing the internship program by hosting the entire student cohort when other arrangements collapsed). On the other side of the flexibility coin, a number of interviewees raised concerns about how an absence of structural flexibility had detrimental effects on the students’ learning program and on aspects of the university-industry collaborative process. For example, it appeared structurally difficult for the university to respond adequately to SuperTrans’ request that strategic thinking and
innovation be integrated across the SCM learning program. These data link strongly to Observations 1 and 3 by highlighting the need to address the overly-technocratic nature of SCM teaching by taking a systemic (i.e. holistic) perspective when designing and delivering SCM learning programs and opportunities.

With respect to Interpersonal Acuity, the majority of interviewees were clear in identifying soft skills, such as effective interpersonal communication, as being a critical attribute for SCM professionals. At the same time, some participants acknowledged that soft skills are difficult to teach and assess out of context, and particularly in academic settings. From the point of view of the collaboration itself, the data showed that the history and the quality of the personal and professional relationships among the key people from SuperTrans and MU were critical to the positive outcomes that were achieved. There was also evidence that students’ personal and work history played a role in how they were able to engage with the learning program, particularly the internship. Being able to take students’ backgrounds into account during program delivery, for example, was identified as one way of helping tailor teaching to support accelerated learning. The data informing this construct connects to Observation 3 which identifies the need to strengthen the soft skills and change management capabilities of SCM professionals.

In the context of Professional Commitment, comments made by the university and industry participants revealed their own high levels of interest in professional learning and SCM professionalism. These participants also expressed strong views about the contribution of effective SCM to business success, and about the willingness of practitioners to be closely involved in the development of future SCM professionals. Once again the importance of SCM professionals having strong influencing and negotiating skills was highlighted. From the perspective of the student participants, there were consistent messages acknowledging how individuals from both the university and business contexts had made a positive impact on their learning and had taken a genuine interest in progressing their SCM knowledge and skills. By contrast, a handful of students made less favourable comments about the contributions of program staff who they perceived to be lacking integrated, ‘real world’ knowledge of SCM and who were described in terms of ‘just reading from the textbook’.

These findings highlight the interconnectedness of the three observations, with an overall message that effective development of SCM as a profession requires a multi-faceted approach involving experienced practitioners collaborating with university staff to co-design and deliver curriculum, mentor students, and help progress an integrated view of SCM that positions it strategically within their own organisation and more broadly.
**Closer examination of the four ‘bridging’ concepts**

As noted earlier, four of the concepts contribute to more than one construct in the framework and act as ‘bridges’ across constructs and domains. When considered together, these bridging concepts might be viewed as cornerstones for accelerating learning in this case study. Taken together they suggest that SCM learning can be accelerated through university-industry collaboration when the collaborating organisations (and their representatives):

- accept ownership and ongoing responsibility at senior levels for defining clear boundaries and roles that will support synergies for developing SCM knowledge and learning beyond the functional/technical aspects of supply chains (linked to Observations 1 and 2)
- demonstrate proactivity and commitment to innovation through challenging the status quo and taking a cross-disciplinary approach to further develop SCM knowledge (linked to Observations 2 and 3)
- prepare the collaborative groundwork through shared vision and strong communication processes that enable assumptions about capacity, expertise and resources related to both SCM learning and collaborative research being declared and interrogated (linked to Observations 2 and 3)
- have substantial influence within the SCM field and sufficient agency to both manage relationships and negotiate authoritatively (linked to Observation 3).

**Ownership and responsibility**

In terms of the data from this study, ‘ownership and responsibility’ included explicit commitment to developing the SCM profession, belief in the value of comprehensive induction programs for SCM graduates, and preparedness to engage in cross-sectoral and cross-disciplinary dialogue. The central involvement of the senior executive from SuperTrans was crucial in establishing and supporting the collaborative venture to accelerate SCM learning. The university program coordinator made a number of references in his interview to the strategic role the SuperTrans senior executive had played in providing vision and an impetus for Midsize University to become involved in the SCM area. The senior executive himself, however, expressed some surprise at what he perceived to be the university’s limited grasp of the strategic potential to position itself as a niche provider of SCM programs.

I did a lot of background strategic work – interestingly, work I thought the university would have done but it didn’t … I got all this data together, gave a presentation to the Faculty Advisory Board on the whole graduate shortage and skill shortage across Australia at the time, which was pretty critical … why I felt there was a lot of potential for [MU], if it could position itself first, to get their ‘first mover’ advantage. (SuperTrans Senior Executive, Interview 1, pp. 22 and 25).
More broadly, all the university-industry participants expressed the view there was much to be gained for SCM as a developing field if experienced practitioners and senior managers across organisations contributed directly to professional learning programs and took responsibility for developing future cohorts of SCM practitioners. This finding links directly to Observation 1 and supports an argument for industry taking a stronger, more direct role in contributing to the advancement of SCM knowledge and the development of SCM professionals.

The interview data also supported the view that, both organisationally and individually, being able to take ownership and responsibility for accelerating SCM learning requires clear boundaries, well defined roles, and recognition of synergies. This finding links directly to Observation 2, highlighting the need to address these key dimensions when trying to develop integrated models. With respect to boundaries, for example, there was some discussion in the data about which ones could stay ‘fixed’ and which ones could (or should) be ‘stretched’. In the area of student assessment, for example, the SuperTrans senior executive explored the issue of stretching the assessment/credentialing boundary by incorporating context-based performance indicators (such as those attributes which students would be expected to demonstrate in a work placement/internship component) into program assessment. He saw this as having benefits for all stakeholders because it positioned context at the forefront of SCM knowledge and learning.

Context-based learning is very important ... the university can teach certain generic skills but the sooner we can get people to context [the better] and I’m suggesting [they] do that during their learning [time] at university. (SuperTrans Senior Executive, Interview 2, p. 10)

The contribution of role clarity to accelerating SCM learning was mentioned by many of the interviewees, including students. The manager coordinating the internship within SuperTrans demonstrated both a strong commitment to professional development and a clear understanding of the value her coordinating role could bring to the students’ SCM learning experiences. The internship having been arranged at short notice, this manager was conscious that there had been insufficient time for her to completely ‘warm up’ the additional section heads and other key people in SuperTrans before the students arrived. She also felt that with more time she could have attempted to match students’ individual areas of interest in SCM with the relevant part of SuperTrans supply chain operations.

It would have been good to have more time to maybe do much more engagement up front. I think I would have preferred to have that time to get stakeholders involved before any students were ‘let loose’ but I would have liked more time to maybe come up with more of a plan and maybe tailor it to what the wishes of the students were. (SuperTrans Manager, p. 49)

Staying with role clarity, many of the students revealed a desire to be seen in roles other than ‘student’. In speaking about their research-based internship experience at SuperTrans, ten students
raised the issue of wanting to be given responsibility (and recognition) for doing ‘real’ work, as distinct from the research they were conducting. In their researcher role they still felt like students, not real workers. The SuperTrans senior managers, on the other hand, found the research report and student interaction from the internship to be very valuable. Contrasting perceptions such as these are linked to Observation 2, highlighting the need to address issues around clarity of expectations, boundaries and roles when taking a more integrated approach to SCM curriculum design.

Commitment to proactivity and innovation

There was evidence that SuperTrans was better disposed towards proactivity and innovation than the university was. In part, this may be due to differences in governance arrangements and exposure to commercial realities. As Figure 1 showed, SuperTrans was seeking new strategies to increase competitive advantage using improvements in SCM as a major tool. Evidence suggested that the university was less well disposed to innovation, choosing instead to ‘fit’ the new area of SCM education into its existing structures, staffing arrangements and program formats.

Indeed, the SCM program coordinator was of the view that the university’s decision to become involved in SCM education was reactive, not proactive, based simply on receiving an invitation to be part of an existing consortium. This sense of reactivity contrasts with the more proactive perspectives from industry participants about progressing an agenda for accelerating SCM learning and research. The SuperTrans senior executive had this to say:

I realised that the knowledge had to come from the practitioners … it was practice that was leading the way. Supply chain management is one area where practice has got well ahead of theory. Therefore, the aspiration was that the strategic plan would determine the projects and we would then use [Midsize] students to do research based on practical problems so we would have a link between theory and practice. (SuperTrans Senior Executive, Interview 2, p. 3)

There were several comments made in interviews about the continuing uncertainty surrounding the emergence of SCM as a professional field striving to clarify its body of knowledge in the face of vested interests, and the influence of neoliberal forces on businesses and education. The university program coordinator, for example, alluded to the effects of neoliberal and managerial influences on the structure and functioning of Australian universities.

Successive governments, and mainly the Howard Government, have stripped the universities of so much money and made it commercial, made the universities act in a business-like manner – so called. (Program Coordinator, p. 70)

One of the industry practitioners noted there had been pressure by vested interests to include more procurement content in the undergraduate program developed by MU. Another believed there was a need to critically examine the influence of information technology, particularly Enterprise Resource Planning (ERP) systems, in too narrowly shaping the conceptualisation of SCM as a field.
These findings have implications for Observations 2 and 3, suggesting a need for greater involvement by industry and individual businesses to help with innovation in the delivery of SCM learning.

**Capacity to surface and interrogate key assumptions**

It was clear from the data that both the university and SuperTrans made major assumptions about each other’s capabilities, and many of these assumptions were neither declared nor tested. For example, SuperTrans made two major assumptions about the university: that it would have a good grasp of the strategic benefits of positioning itself as a niche provider of SCM programs; and that it would be able to adapt program delivery models, or develop new ones, to optimise student learning in an emerging knowledge field. The SuperTrans senior executive was looking to Midsize University to manage new knowledge processes.

Most large organisations either create their own universities [like in] the McDonalds or Motorola [model] but the weakness of that model in my view is it becomes procedural training for a known world. [Alternatively] you do what’s happening in Britain and large parts of Europe where you partner with universities because they can manage the sort of knowledge processes you need. (SuperTrans Senior Executive, Interview 2, p.2)

Paradoxically, the university seemed to take the position that it could add SCM to its suite of disciplinary studies using existing resources, models of program development, and methods of delivery. It did not appear to invest much in the way of additional or specialised resources. Any benefits gained from group planning processes involving industry practitioners or attempts to respond to explicit requests from the SuperTrans senior executive for an integrated approach and holistic delivery were diluted by standard program modularisation and the requirement to use the expertise/content knowledge of existing staff.

Most of the communication between SuperTrans and Midsize University took place informally, at the personal level. While this was a strength in terms of what it revealed about the level of trust among the key individuals in the collaboration, there was clearly an absence of formalised processes, the design and enactment of which may have exposed important assumptions about what each organisation was capable of bringing to the collaboration.

These findings link to Observations 2 and 3. They reinforce the need for greater involvement by industry and individual businesses in the delivery of SCM learning, and highlight the potential value of developing long-term, formalised university-industry collaborations to advance SCM learning that are supported by mutual understanding of parties’ capacities and resources.
Ability in influence, negotiate and manage relationships

The data showed that the strength of networks was an important aspect of the university-industry collaboration. The university and industry personnel used their networks to source both people and materials when developing the SCM program. For example, the initial approach by SuperTrans to MU to collaborate in SCM learning was grounded in both personal and professional networks created through the commissioning of earlier research and personal contacts. Similarly, the program coordinator used his professional networks to source a suitable person to draft new program modules.

By contrast, five of the students commented on what they saw as a disadvantage of their ‘lowly’ status in the early stages of their internship, as outsiders with no influence or significant networks. For some, this was an inconvenience that manifested itself in having to wait for managers to reply to emails and phone messages connected to the research students were undertaking.

We’re the bottom of the pile and I knew that would be the case from the start so while that has been a real pain I fully understand why it’s occurred. It’s to be expected. (Domestic student FE, p. 42)

It’s also difficult to make appointments with managers or with staff at [SuperTrans]. It sometimes takes a week and we didn’t get a response (International student PO, p. 81)

For others, the issue of lowly status was more connected to feeling uncertain that their research findings would make an important contribution to an area of work that was already being investigated by experienced practitioners.

I don’t know if I can suggest something they don’t already know to fix the problem. (Domestic student AB, p. 8)

With respect to soft skills, such as interpersonal skills, more than 20 percent of the students spoke in their interview of the extent to which their internship experience had increased their awareness of the importance of managing effective communication in supply chain contexts. For example:

‘I think there was lack of communication between the areas. It’s kind of like their information is their information and they don’t want to share it and I think that does match up to [our program] because the program emphasises a lot on information sharing because if you don’t share information you’re not really going to know what’s going on. (Domestic student HG: 24)

I think that they don’t really understand who’s doing what. Because we recorded our interviews and if you listen in the first interview the first person said, “This department is doing this” and when we contacted that department they said, “No, no we’re not doing this,” so I think communication can be a problem. (International student PO, p. 27)
These specific findings support Observation 3, highlighting the need for SCM professionals to develop appropriate soft systems skills and understand the importance of those skills to supply chain contexts. The overall findings confirm the relevance of all three observations.

5. DISCUSSION

While van Hoek and Wagner’s (2013) three observations help clarify what actions are needed to progress SCM knowledge and learning, there are clearly challenges in knowing how to achieve those actions. By presenting conditions, characteristics and capacities of individuals and organisations that were identified within this case study as enabling, through their interaction, the acceleration of SCM learning, the Supply Chain Management Accelerated Learning Framework may offer some insights to aid implementation – whether that be for designing future collaborations for advancing SCM learning or promoting optimal SCM learning at either the individual business enterprise or the supply network level.

With respect to the issue of SCM professionalism alluded to in Observation 1, the framework foregrounds an increased role for individual businesses and their SCM practitioners in offering intensive field experience and mentoring to students during their academic studies to accelerate leading-edge knowledge transfer and integrate learning. A formal commitment by universities and individual businesses to collaborate for clearly defined periods of time to develop SCM learning and research activity in all domains of SCM, but especially the non-technocratic ones, could be a useful first step.

In relation to addressing the issue raised in Observation 2 of achieving the cross-disciplinary integration necessary to expand the SCM curriculum, the framework puts the spotlight on the importance of clear strategic vision and alignment at both organisational and interorganisational levels. The current research in SCM education suggests the strongest focus is still on fine-tuning content areas – this may be diverting attention from the challenges of identifying and implementing appropriate processes to support effective integration across content areas.

With regard to Observation 3, the findings from this study align with the current body of SCM literature stressing the need to give greater prominence to the development of soft skills. By their very nature these skills are best learnt within a work-based context and are not well suited to assessment by traditional university assessment methods. As it is industry which has both the best learning context for acquiring soft skills and the most compelling case to have a work force which has acquired them, it falls on industry to play a greater role in this aspect of SCM education. In the undergraduate context, this would be helped by increasing the pool of businesses willing to host work placements or
internships specifically focused on SCM issues and knowledge development. In the post-graduate context, it requires a commitment to tailoring mentoring and induction programs for SCM graduates in ways that both build on their academic experiences and continue their professional development.

It was noted earlier that the SCM learning program developed through the university-industry collaboration was considered successful by all participants in the study. The student participants felt the program had prepared them well for a career. The industry-university participants viewed the program as both a satisfactory product in itself and an important milestone in what they hoped would be a continuing collaborative process. Of particular note, the senior executive and senior manager from SuperTrans both commented on how the graduates from the case study cohort had a far superior grasp of SCM issues than previous groups of graduates. However, the collaboration did not endure beyond the employment tenure of two of the key industry and university staff members. Because the collaboration had been personality-driven and was not formalised, the departure of these two individuals meant that the longer term plan of workforce development through combining graduate and post-graduate practitioner and research capacity to tackle complex SC issues and develop the SCM body of knowledge did not eventuate.

Limitations
As this research is a qualitative single case study, the generalizability of its findings is limited on two grounds: first, it involved only one educational institution and one industry partner; and, second, the framework developed from it has yet to be tested more broadly.

6. CONCLUSIONS
This paper presented a case study which used some grounded theory procedures to examine a university-industry collaboration aimed at accelerating SCM learning. A theoretical framework was generated from the data and this was compared with van Hoek and Wagner’s (2013) three observations related to SCM learning and education. The three observations were chosen as comparison points because both the SCM literature and the university-industry collaboration literature confirmed their relevance, and they provide a tidy summary of key issues currently affecting SCM learning and research.

The study showed that neither the university nor the industry partner in the collaboration fully appreciated all the key requirements for accelerating SCM learning. In the case of the university, it did not exhibit the proactivity and innovation needed to offer a multidisciplinary approach for optimising the integration of students’ learning. In the case of the industry partner, it overestimated the university’s innovative capability, strategic capacity and flexibility.
Despite these limitations, the collaborating parties demonstrated a desire to make both the accelerated learning program and the broader collaboration work. The impediment to realising some critical aspects of accelerating SCM learning was not a lack of motivation but a lack of understanding of how to alter organisational processes, roles and responsibilities to better support such an outcome. Hence more research is needed into how to make collaborations for SCM learning work more effectively. To that end, we content that the Supply Chain Management Accelerated Learning Framework offers a useful starting point.

REFERENCES


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Ronald Fisher is Professor of Operations and Supply Chain Management at Cardiff Metropolitan University and Visiting Fellow in the South Wales Business School at the University of South Wales. He was a senior manager in the public, private and global business sectors for more than 30 years and a tenured academic for 12 years. He has published over 90 refereed journal articles and conference papers. His research interests include value creation in service industries and supply chain management.
Procurement • Result: $50m savings
Inventory • Result: $45m savings
Information Technology • Result: $5m savings

1st
 Strategy: Application of Best Practice
  Procurement, IT and Inventory Management – i.e. value release
 Change Management: Adjustment of internal processes
 Core Discipline: Multidisciplinary

2nd
 Strategy: Open Innovation and value creation
 Change Management: Transformation of corporation
  (i.e. Inter-Organisational Network (ION) process management)
 Core Discipline: Interdisciplinary

3rd
 Strategy: Largely unknown but needs shift in emphasis from cost savings to value co-creation with suppliers and customers
  (e.g. Service Dominant Logic)
 Change Management: Unknown but profound
 Core Discipline: Transdisciplinary

(Stage) (Focus) (Process)
Set a strong and sustainable cross-sectoral foundation to continue developing SCM body of knowledge

Sustain academic and practitioner input to design and delivery of (a) learning opportunities and (b) research activities to support SCM learning

STRATEGIC COHERENCE
- Clarity of strategic vision and focus
- Alignment of strategy and resources

POLITICAL POTENCY
- Agenda transparency
- Organisational power and influence
- Ownership and responsibility

INTERPERSONAL ACUTITY
- Ability to negotiate, influence and manage relationships

PROFESSIONAL COMMITMENT
- Belief in importance of SCM as a profession
- Ownership and responsibility

STRUCTURAL FLEXIBILITY
- Organisational agility
- Mechanisms to support learning from, or acting on feedback
<table>
<thead>
<tr>
<th>Primary data collection instrument</th>
<th>Key focus of instrument</th>
<th>Comments</th>
<th>Demographic Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper survey of students enrolled in SCM major</td>
<td>Students perceptions of: • the most important SCM knowledge and skills • their own levels of SCM knowledge and skills</td>
<td>Survey completed by 18 of the 21 students Responses used to inform the focus of questions and prompts for student semi-structured interviews</td>
<td>Female</td>
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<td>International</td>
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<td>Domestic</td>
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<td>8</td>
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<tr>
<td>Semi-structured interview (30-45 minutes) with each student</td>
<td>Gain more detailed student perceptions of their learning in the program, with particular emphasis on the internship</td>
<td>Completed for all students Two students declined to have their interviews recorded.</td>
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<tr>
<td>Semi-structured interview (45-60 minutes) with each of the four non-student participants</td>
<td>Perceptions of: • the university-industry collaboration • the SCM program</td>
<td>Completed for all four subjects A second interview was conducted with one subject and follow-up information was requested via email</td>
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Table 2: Development of constructs from concepts

<table>
<thead>
<tr>
<th>Examples of Single Concepts</th>
<th>Composite Concepts</th>
<th>Categories (Constructs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Championing SCM knowledge development; valuing SCM as source of competitive advantage;</td>
<td>Clarity of vision and strategic focus</td>
<td>Strategic Coherence</td>
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<tr>
<td>recognising emergent SCM knowledge; looking beyond current models; envisioning a future</td>
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<td>in/for SCM</td>
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<tr>
<td>unpacking SCM complexities/contradictions; communicating SCM knowledge benefits;</td>
<td>Alignment of strategy and resources</td>
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<tr>
<td>committing resources to SCM knowledge development; getting the mix right for SCM</td>
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<td>knowledge/learning</td>
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<td>&quot;Diving in versus walking around&quot;; taking the SCM 'leap of faith'; valuing critique;</td>
<td>Capacity to surface and interrogate</td>
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<tr>
<td>getting peer and outside support; asking the right questions; being comfortable with</td>
<td>assumptions</td>
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<tr>
<td>complexity; identifying strengths and constraints</td>
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<tr>
<td>being on the same page; understanding SCM benefits; having a common language for SCM;</td>
<td>Shared vision</td>
<td>Interorganisational Congruence</td>
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<tr>
<td>demonstrating a belief in SCM as a professional field</td>
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<tr>
<td>shaking the status quo; supporting SCM innovation; taking the lead in SCM knowledge</td>
<td>Commitment to proactivity and innovation</td>
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<tr>
<td>development; taking account of environmental/contextual factors; understanding value of</td>
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<td>SCM niche positioning</td>
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<td>involving all players; understanding SCM politics; being aware of competing priorities;</td>
<td>Agenda transparency</td>
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<tr>
<td>seeking new ideas for SCM; having honest communication; identifying vested interests in</td>
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<tr>
<td>SCM; keeping one’s word</td>
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<tr>
<td>needing high status individuals to lead SCM knowledge development; gathering strategic</td>
<td>Organisational power and influence</td>
<td>Political Potency</td>
</tr>
<tr>
<td>support for SCM; organisational reputation; valuing SCM industry body accreditation</td>
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<tr>
<td>senior professionals being actively involved in SCM knowledge development; valued</td>
<td>Ownership and responsibility</td>
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<tr>
<td>continuous learning; contributing solutions to problems; clarifying boundaries/roles for</td>
<td>Multidisciplinary perspective</td>
<td>Professional Commitment</td>
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<tr>
<td>SCM learning</td>
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<tr>
<td>understanding SCM interdependencies; supporting SCM graduate and workforce learning;</td>
<td>Ownership and responsibility</td>
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<tr>
<td>bridging SCM knowledge gaps; broadening range of learning contexts; identifying tools</td>
<td>Ability to influence, negotiate and</td>
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<tr>
<td>for integrating SCM learning</td>
<td>manage relationships</td>
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<tr>
<td>(As above within Political Potency construct)</td>
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<tr>
<td>leveraging role status in SCM field; sensing personal agency; having effective</td>
<td>Ability to influence, negotiate and</td>
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<tr>
<td>interpersonal skills; understanding centrality of good communication</td>
<td>manage relationships</td>
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<tr>
<td>building insider knowledge; understanding socio-technical aspects of SCM; strength of</td>
<td>Individual agency and influence</td>
<td>Interpersonal Acuity</td>
</tr>
<tr>
<td>personal/professional networks; acting on perception of organisational role/status</td>
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<tr>
<td>extent of previous involvement with SCM; using personal and professional networks;</td>
<td>Personal history and experience</td>
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<tr>
<td>building SCM insider status/knowledge; taking personal responsibility for action</td>
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<tr>
<td>being ‘customer-centric’; having capacity for rapid decision making/ action</td>
<td>Organisational agility</td>
<td>Structural Flexibility</td>
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<tr>
<td>(As above within Interorganisational Congruence construct)</td>
<td>Commitment to proactivity and innovation</td>
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<tr>
<td>Opening/clearing communication channels; having capacity to interpret feedback; seeking continuous improvement</td>
<td>Mechanisms to learn from/act on feedback</td>
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