LEARNING TO INNOVATE: THE PROCESS OF LEARNING BETWEEN DIVERSE ORGANIZATIONS

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ABSTRACT

This paper links the processes of innovation and organizational learning at the micro-foundation of behavioural change. Building on prior research and using case study data to illustrate, this study suggests that certain conditions make behavioural change more likely. It is this exploration of new behaviours that may lead to cognitive change and ultimately innovation. We raise the importance of the relationship between organizational identity and individual identity to the outcomes of interactions between diverse organizations and we propose that organizational identity strongly influences the learning and hence innovation potential of organizations.

1.0 INTRODUCTION

"The innovation process, especially complex and radical innovation, benefits from engagement with a range of partners which allows for the integration of different knowledge bases , behaviours and habits of thought" (Pittaway, Robertson, Munir, Denyer, Neely 2004: 150). The ability to tap into a range of knowledge has the potential to increase a firm's capability to innovate. However, engaging with diverse organizations also constrains the realization of that potential by activating identity and dysfunctional learning processes that protect identity (Brown & Starkey, 2000). Current theory does not explain how first, individuals and then, diverse organizations overcome these constraints, learn from each other and subsequently innovate.

In keeping with this year's conference theme "Learning to Innovate: Innovating to Learn" this paper links the processes of inter-organizational learning with innovation and advances our knowledge of their micro-foundations. We first consider how organizations and their managers opt to alter their behaviour when interacting with diverse organizations and in so doing create, share, and integrate knowledge that may ultimately result in innovation. We then consider the following research question: What are the conditions that enable an organization to learn from other diverse organizations? Specifically, we explore the conditions that enable organizations

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and their managers to overcome the multi-level constraints imposed on learning, and by extension innovation, by their social, role, and organization identities.

We contend that innovation is a value-added learning outcome and that like organizational learning it can begin with either behavioural or cognitive change. We argue that the extent to which individuals experiment with new behaviours in response to feedback is a function of the interaction of their individual identities and their respective organizations' identities. Building on previous research we propose that under certain conditions individuals will alter their behaviours, without changing their beliefs, thus raising the possibility for exploration and experimentation (Inkpen & Crossan, 1995). We first position our study in the literature. Next, we develop a process model of the influence of identity on learning and then propose conditions that will support behaviour change. We illustrate our model using data from a case study of the salmon farming industry in western Canada. We close with implications for research and suggestions for future research.

2.0 LEARNING AND INNOVATION BETWEEN DIVERSE ORGANIZATIONS

The innovation literature suggests that innovation, in particular complex or radical innovation comes from networking with a variety of partners (Pittaway et. al., 2004; Powell, Koput, & Smith-Doerr. 1996). This view is echoed by research on diversity at the group level that takes an information processing perspective. In this perspective emphasis is placed on how distinctiveness and difference can create novelty, learning, and increase performance via the constructive exchange of information (Mannix & Neale, 2005). However, diversity research that comes from a social categorization or social identity perspective emphasizes the value that individuals and groups place on belonging and tensions created by heterogeneity within and between groups (Harrison & Klein, 2007; Jackson, Joshi & Erhardt, 2003; Mannix & Neale, 2005; Milliken & Martins, 1996). This research suggests there are significant challenges to engaging with diverse individuals and organizations and that organizational identity and social and role identities underpin many of the tensions. Yet, as noted in both the learning (e.g. Crossan, Lane, & White, 1999) and innovation (e.g. Dess & Picken, 2000) literatures, the ability to learn and to innovate is a critical source of competitive advantage for organizations.

2.1 Innovation is Value Added Learning

Innovation is defined as "the production or adoption, assimilation and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services and markets: development of new methods of production; and establishment of new management systems" (Crossan & Apaydin, forthcoming). Innovation is value added at one or more levels whereas organizational learning can, and often does, occur without any intended benefit.

Similar to organizational learning, innovation is both a process and an outcome (Crossan & Apaydin, forthcoming; Crossan et. al., 1999). Also similar to organizational learning, innovation is built on a foundation of individual and group outcomes and processes (Anderson, DeDreu, & Nijstad, 2004; Nightingale, 1998). Defining innovation in terms of the social processes involved, we can say that innovation is value added through the intuiting, interpreting, and integrating of a novelty in economic and social spheres and the institutionalizing of that

novelty. Therefore, it is the individuals and the social processes through which they interact, that either facilitates or constrains the adoption and embedding of novelty (organizational learning) that are value added (innovation). Hence, innovation is an organizational learning process whose outcome is evaluated against a standard (value added) and to achieve "value-added novelty" requires some degree of cognitive and behavioural change at multiple levels. In this study we will concentrate on the genesis of the individual level changes that may result in intuiting, interpreting and integrating.

2.2. Alignment of Cognition and Behaviour is Key to Learning and Innovation

While researchers have accepted that learning encompasses both cognitive and behavioural development, studies of organizational learning have tended to rely on cognitive theories (Easterby-Smith, Crossan, & Nicolini, 2000; Starbuck & Whalen, 2008). Fiol and Lyles (1985) distinguish between changes in cognition and changes in behaviour and suggest that they may occur independently. Inkpen and Crossan (1995) suggest that behavioural change without cognitive change or cognitive change without behavioural change sets up a transitional state because of the tension created when change in one is not supported by corresponding changes in the other. This tension results in "cognitive dissonance" and its reduction is a fundamental process (Festinger, 1957; Inkpen & Crossan, 1995).

In cognitive theories the effectiveness of learning in pursuit of a goal, such as value added novelty or innovation, hinges on individuals' perceptions. Yet, cognitive theories offer little help in explaining how individuals can improve their performance when their interpretation of the environment differs from others', as is likely the case between diverse organizations. Conversely, behavioural learning theories attempt to explain how effective learning can occur in spite of individuals' perceptual errors and biases (i.e. in response to feedback) (Starbuck & Whalen, 2008). This suggests that an examination of the behavioural aspect of learning may help in understanding learning between diverse organizations.

2.3 The Reality of Identity versus the Promise of Diversity

While extant research on diversity has tended to assess the impact of individual level diversity on individual and team performance, not organizational level diversity or learning, it brings to light the social psychological processes that are inherent in individual and group interaction and the probable impact of identify on the interaction between individuals from diverse organizations.

Prior research on the impact of differences in individual characteristics within and between groups splits into two perspectives (Mannix & Neale, 2005). The information processing perspective is the most optimistic suggesting that diversity will lead to an increase in approaches and opportunities for knowledge sharing. The more pessimistic view and the one supported by a preponderance of evidence is that diversity creates divisions and tensions and negative performance outcomes. This is the social identity/self categorization perspective (Mannix & Neale, 2005). Drawing insight from the extant diversity literature, in this study we define diversity as visible (i.e. race, ethnicity, structure, profit vs. non-profit) and non-visible (i.e. values, function, geographic scope, cultural background, connectedness) difference between organizations.

Identity exerts a powerful hold on both individual and organizational behaviour (Gioia & Poole, 1984; Mannix & Neale, 2005; Ring & Van de Ven, 1994; Stryker & Burke, 2000; Weick, 1979). People interpret the world through a process of sensemaking that is supported by their individual beliefs and strongly influenced by their past experience, social and role identities, and organizational context (Weick, Sutcliffe & Obstfeld, 2005). Once an identity is institutionalized it endures for some time and provides a context in the form of systems, structures and procedures for feedback on events and experiences (Crossan, et. al., 1999; Fiol & Lyles, 1985). Therefore identity theories provide an explanation for the sources of cognitive and behavioural diversity between organizations and by describing the way that individuals make sense of, and respond to, the stimuli they encounter.

We use three conceptualizations of identity from prior research in this study; at the individual level, social identity and role identity, and at the collective level, organizational identity. Social identity is understood to be an individual's self-categorization as a member of a group as well as the value and emotional significance that the individual places on that membership (Tajfel, 1978; Tajfel & Turner, 1985). While social identities are characteristic of collectives such as teams or organizations, role identities are components of roles such as occupations, professions etc. (Ashforth, Harrison & Corely, 2008). Social identity provides insight into group processes and inter-group dynamics, whereas role identity explains the role related behaviour of individuals (Stryker & Burke, 2000).

Organizational identity is "the central and enduring attributes of an organization that distinguish it from other organizations" (Whetten, 2006: 220). It is how individuals understand and categorize the organization to which they belong (Albert & Whetten, 1985; Ashforth & Mael, 1989; Corley, Harquail, Pratt, Glynn, Fiol, & Hatch 2006). Organizational identity involves meaning at the collective level, which may be tacit or explicit, taken for granted or conscious and deliberate (Corley & Gioia, 2003). Some identity beliefs are central while others are peripheral and organizations can have multiple identities (Fiol, 1991; Golden-Biddle & Rao, 1997; Pratt & Foreman, 2000).

There have been two main approaches to the construct: social constructionist and an institutional perspective (Elstak, 2008; Ravasi & Shultz, 2006). Social constructionists argue that organizational members collectively build a shared understanding of their organization through their interaction (e.g. Gioia, Shultz, & Corley, 2000). Institutionalists argue that that identity is a set of stable and enduring self descriptions of an organization that exists irrespective of the individual members and that change only with great difficulty (Ashfoth & Mael, 1996; Ravasi & Shultz, 2006; Whetten, 2006; Whetten & Mackey, 2002). In this study we consider organizational identity as comprising both institutionalized notions of identity which constrains and shapes individuals' interpretations and collective meanings that are shaped as individuals reach mutual understanding and shared interpretations (Gioia, Schultz, & Corley, 2000; Ravasi & Schultz, 2006).

2.4 Identity is Enacted through Scripts

Scripts invoke shared or cultural knowledge, such as how to behave in a restaurant. Scripts are a subset of knowledge structures or schemas and are primarily concerned with understanding behaviour. An individual's identities are linked to scripts in that a role or group

affiliation (social identity) can be considered a special case of a script (Gioia & Poole, 1984). An individual will activate an identity in a given situation and that in turn will activate a script. In novel situations they will behave consciously and by changing their behaviour individuals may develop new or alter existing scripts.

Organizational identities are also linked to scripts. Organizational knowledge and skills are likely to be influenced by the basic assumptions that organization members use to define "who we are" as an organization (Kogut & Zander, 1996). For instance, Dutton and Dukerich (1991) found that members' sense of the organization's identity was associated with a set of routine behaviours or scripts, which when activated were identified as "typical" of the organization. Barney et al (1998) suggest that once a firm determines "who they are" it is it is very easy to determine what they "must do" (113). They (Barney et. al., 1998) also suggest that a firm can begin with behaviour and develop an identity out of that action. Therefore, we argue that an organizational identity is interdependent with, and requires a corresponding script (Barney et al, 1998).

Scripts help in understanding the relationship between cognition and behaviour at the individual and at the organizational level (Abelson, 1981, Gioia & Poole, 1984; Gioia & Manz, 1985). At both levels scripted behaviours are often performed unconsciously although active cognition is involved during the process of script development and when encountering unusual, novel or unconventional situations (Gioia & Poole, 1984). When an individual or organization encounters a situation that shares some common elements with previous experience they compare it to their existing scripts. Information that "more or less" matches an existing script signals that active thought is not necessary and the existing script can be enacted (Gioia, 1992). The individual and organization must then interpret the feedback it receives to assess the appropriateness of the script to the situation. In the next section we develop a model of how the behavioural aspects of identity influence learning and we delineate the conditions under which they are likely to result in behaviour change and possibly higher level learning processes that may result in innovation.

3.0 THEORY DEVELOPMENT

Our eventual goal is to describe how inter-organizational learning, and potentially innovation, occurs between diverse organizations. Our model begins with engagement between two (or more) diverse organizations. This engagement happens individual to individual therefore what we describe are micro-processes that occur within and between individuals. This starting point is partly a function of the literature on which we draw - particularly social identity and role identity theory, and script processing theory - and partly a function of the individual behavioural and cognitive dynamics in an inter-group setting that form the foundation of organizational learning (Crossan et. al., 1999) and identity change (Bohm, 1996). However once set in motion the overall process is inherently multi-level in that individual identity beliefs and behaviours are lower level constructs that both influence and aggregate to higher level constructs. Ultimately, our model proposes a relationship among higher level constructs (e.g. the influence of organizational identity on organizational learning and in particular inter-organizational learning).

3.1 A Process Model of the Influence of Identity on Learning

To describe this relationship we have developed a process model of the influence of identity on learning. Figure 1 shows the stages underlying the process and the responses that mark the passage through these stages. The model explains how individuals, in the context of their organizational identity, activate a particular role or social identity, with its accompanying cognitive and behavioural scripts (Gioia & Poole, 1984). The individuals then make sense of the feedback on their behaviour. If the feedback is consistent with their activated identity they will continue to perform this script. Feedback that is inconsistent with the activated identity may prompt a different interpretation of the situation resulting in either entrenchment or exploration. Exploration may involve either conscious enactment of new behaviours or the activation of a new identity with its accompanying scripts. We argue that the extent to which individuals will consciously experiment with new behaviours (i.e. enact new scripts) in response to feedback is a function of both their social and role identities and their respective organizations' identities.

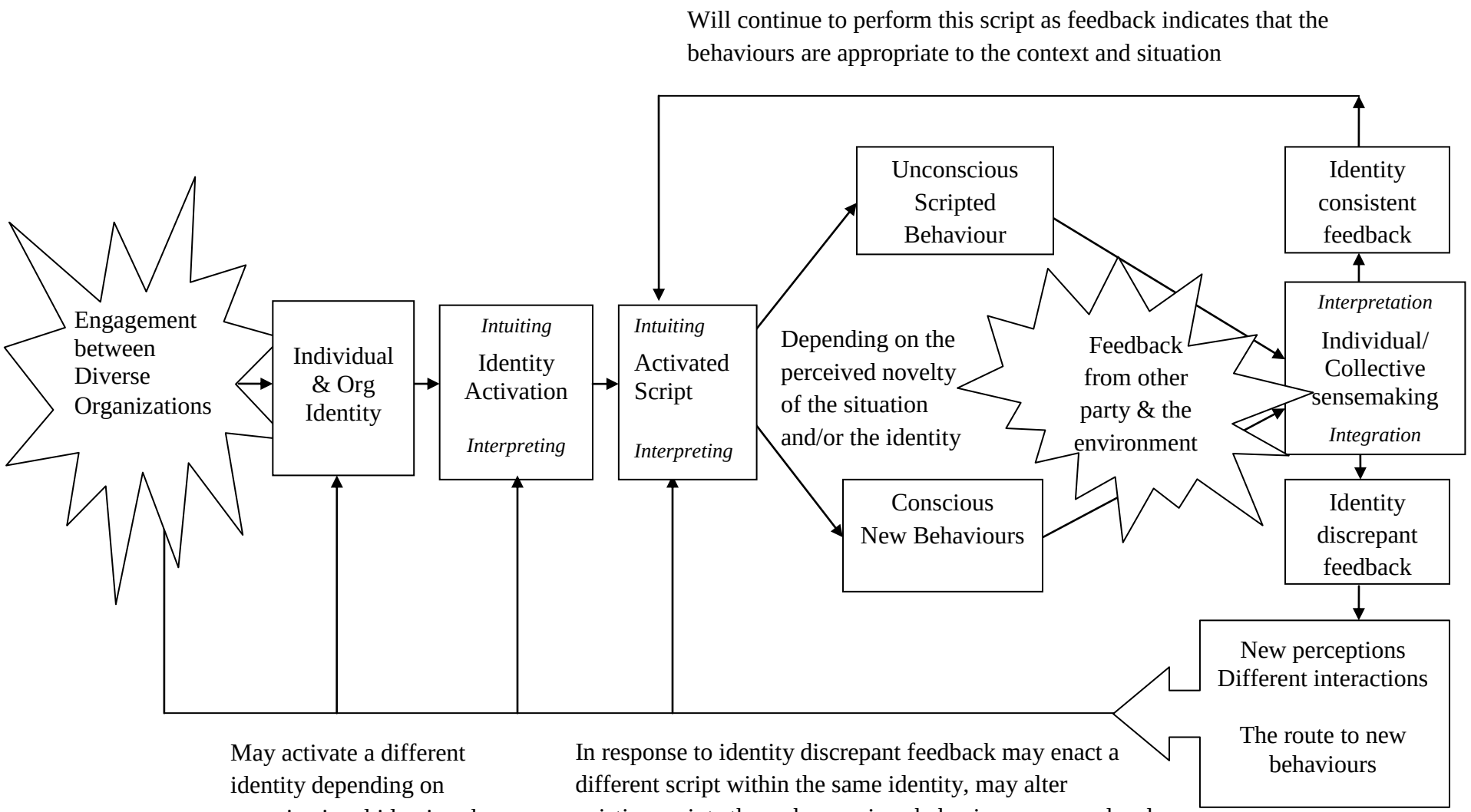
Conscious enactment of new behaviours may instigate dialogue between the individuals that are engaged (Isaacs, 1993). This interaction has the potential to facilitate the integration of new interpretations leading to fundamental change in the meanings the individuals attach to their identities (Bohm, 1996). Individuals will continue to shift their behaviour, their activated identity, or the meaning that they attach to their identity until the tension between the feedback and their activated identity is resolved (Festinger, 1957; Inkpen & Crossan, 1995). At that point individual to individual learning has occurred and the foundation is laid for organizational learning, the mechanisms of which mirror those at the individual level. At the group and organizational level the organizational identity emphasis determines, to an even greater extent, whether individual learning is integrated and institutionalized (Crossan et.al, 1999) and thus whether inter-organizational learning occurs. We will now describe in more detail the boundary conditions of our model.

3.2 Common Individual Identities and the Stability of Organizational Identity

Interaction between diverse organizations may trigger responses, such as defensive routines and an over reliance on past experiences, that inhibit individuals' and organizations' ability to engage in the mindful behaviour associated with new script development (Fiol, Pratt, & O'Connor, 2009; Gioia & Poole, 1984). Information complexity and /or the need to preserve a positive self-concept tend to work against a conscious approach (Gioia & Poole, 1984). This relatively automatic enactment of existing scripts by individuals and organizations will reinforce existing perceptions of identity. Consequently certain conditions may be required to allow the activation of new scripts. While interaction between diverse organizations is likely to evoke the strong emotions (Weick, et. al., 2005) necessary to instigate a change in scripts, we argue that it is the presence of multiple social and role identities that enable individuals to explore the new information surfaced by the interaction (Rothman & Friedman, 2002).

In interactions between diverse organizations, organizational learning may depend on individuals' ability to tap into a range of less salient identities and particularly into identities based on communities of practice and/or roles. Some identities have more importance and prominence than others (Ashforth et al: 327). While an individual's behaviour is, usually, an expression of their more salient identities, when opportunities to express their salient identity are unavailable individuals will often reorder the importance of existing identities (Serpe, 1987).

Figure 1
A Process Model of the Influence of Identity on Learning



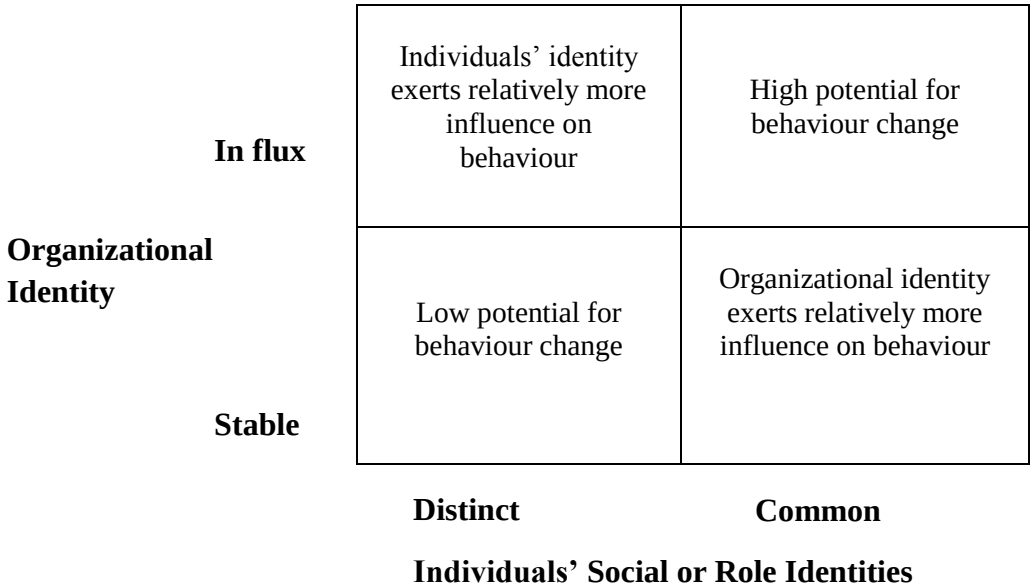
Communities of practice, such as the community of scientists, provide common behavioural protocols as well as common social and professional role identities. Essentially, they provide individuals with common "vocabulary and practice" (Brown & Duguid, 1991). In inter-organizational interactions an identity may connect individuals, whereas within an organization it is their role identity that differentiates them. Also, in a relatively new inter-organizational relationship behaviours are not entrenched.

When members' collective understanding of organizational identity is in a state of flux, perhaps as a result of a crisis in the industry or a merger, the characteristics of the organization that are central, enduring and unique become less clear as do expectations. As a result the constraints that the organizational identity formerly placed on individuals' behaviour may relax and individual identities become relatively more important in individual script enactment. In this situation the presence of common social or role identities can facilitate the enactment of new scripts based on that common identity (See Figure 2).

If individuals from diverse organizations share a common social or role identity such as scientist, engineer, community resident, etc. the potential exists for them to use that common identity and the common behaviours, protocols and language that attach to it to begin to engage in productive information processing (the "promise" of diversity). The changes in behaviour resulting from the new script create the tension between cognition and behaviour that makes learning possible.

Proposition 1: The greater the instability of organizational identity the greater the likelihood of behaviour change based on common individual social or role identities.

Figure 2
Relationship between Stability of Organizational Identity and Individual Identity



3.3 Basis of Organizational Identity and Individual Identification

Organizations possess, like individuals, multiple identities and some have more importance and prominence than others (Albert & Whetten, 1985; Fiol, 1991, 2001; Golden-Biddle & Rao, 1997; Pratt & Foreman, 2000). Organizational identity acts like a higher level "cognitive and behavioural map" that filters and moulds an organization's interpretation of stimuli (Albert & Whetten, 1985: Ashforth & Mael, 1989; Dutton & Dukerich, 1991) and as such activates specific identities in response.

Activating specific identities does more than set in motion specific scripts. Organizational identity also constrains what are considered acceptable practices or legitimate behaviours (Dutton & Dukerich, 1991; Meyer & Rowan, 1977) and it is one of the vehicles through which "preconceptions determine appropriate action" (Weick, 1988: 306). By activating specific identities in response to stimuli it becomes the arbiter of the logic of appropriateness for the organization (March & Olsen, 2004). It is identity that determines "What would an organization like us do in a situation like this?" As a result, the interpretations shaped by the organization's identity can shift individuals' behaviour in particular directions and thereby direct identity activation, and the enactment of different scripts.

In interactions between diverse organizations, and in particular when conditions reinforce unconscious reliance on past scripts (i.e. complex information, need to protect image) we argue that persistent feedback that is interpreted as inconsistent with the organization's identity may activate another identity and set of scripts. Whether or not this occurs is a function of the extent of alignment of the organization's identity with the institutionalized organizational identity types (Elstrak, 2008) as opposed to the product of collective sensemaking by its members. The extent of the alignment of the organizational identity with institutionalized notions and the strength of individual's identification with it impacts behaviour.

For example, Koch Industries of Wichita, Kansas, identifies itself as a "discovery company", not as the institutionalized organizational identities of oil and gas company or resource company (Barney et. al., 1998). According to Barney and his colleagues this identity has "a profound impact on behavior inside Koch" (1998:109). Employees are expected to always be "discovering" new ways to add value to the firm, new businesses to leverage existing skills, and new or improved practices. Similarly, an organization that identifies itself as a "learning" organization will facilitate the enactment of scripts in support of exploration and experimentation.

An organizational identity that, like Koch Industries, diverges from institutionalized notions of identity is necessary but not sufficient to ensure that the individuals directly involved in the interaction with a diverse organization will change in response to feedback. For that to occur individuals must identity strongly with their organization's identity, as shown in Figure 3. When individuals identify with their organization's identity, enacting scripts related to that identity are more likely to take relative priority over their other identities. This is especially the case if the individual is over-identified with their organization (McGregor & Little, 1998; Schwenk, 2002). If the individuals involved strongly identify with their organizations' less institutionally defined identity, they will be relatively less bound by the institutionalized norms

and the potential exists for them to alter their behaviour in interactions with diverse organizations. The changes in behaviour resulting from this script will create the tension between cognition and behaviour that makes learning possible (see Figure 3).

> *Proposition 2: The greater the divergence of an organization's identity from institutionalized organizational identity types the greater the likelihood of behavioural change based on an individuals' identification with that organizational identity.*

Figure 3
Relationship between Individual Identification and Organizational Identity

Basis of Organizational Identity	**Weak**	**Strong**
Collective Meaning	Potential for behaviour change depends on individuals' identities	High potential for behaviour change
Institutionalized Identity Types	Potential for behaviour change depends on individuals' identities	Low potential for behaviour change

Individual Identification with Organizational Identity

3.4 Behaviour Change Leads to New Interpretations and Different Interactions

As described above, in interactions between diverse organizations the process of learning may be thought of as the capacity to activate different, probably less salient, identities and the accompanying behaviours in response to feedback. Once enacted the new behaviours alter the context and create a relatively novel situation that requires conscious interpretation (sensemaking) first by the individuals themselves. If a behavioural change is forced, as in the case of complying with regulations or succumbing to media or government pressure to "consult," it will likely result in no learning because individuals will continue to interpret stimuli through their existing cognitive structures, reinforcing those structures (Inkpen & Crossan, 1995). On the

other hand if a behavioural change is prompted by the activation of a common social or role identity or the organization's identity and is regarded as experimental learning, then individuals may suspend their current belief systems and try new behaviours that eventually result in cognitive change. Individuals must be "willing to suspend their belief systems to try a new behaviour, and in doing so are open to new and different interpretations of the results of the behaviour" (Inkpen & Crossan, 1995: 600). This interpretation of their own new behaviour may lead to new or altered beliefs and hence learning.

The extent of the shared understanding of individuals from each of the diverse organizations forms the foundation for integration and collective learning between them and for inter-organizational learning in their respective organizations. In addition to the internal organizational dynamics discussed in the preceding sections, the nature of the inter-organizational dynamics (Van Wijk & Lyles, 2008) will determine whether inter-organizational learning will ultimately occur. For example, Mason and Leek (2008) discuss the creation of 'soft' mechanisms, such as individuals working together with the expectation that they would learn from each other. They refer to this as the development of an 'inter-firm community of practice'. Prior research shows that to move from individual to collective learning shared understandings must be developed through various forms of interaction such as shared action, discussion and dialogue (Crossan, et. al., 1999; Isaacs, 1993).

While not explicitly addressed in prior research, the structures and mechanisms studied to date appear to facilitate dialogue between individuals and metaphorically between organizations. Dialogue goes beyond typical notions of conversation and information exchange to explore "the manner in which thought … is generated and sustained at the collective level" (Bohm, 1996: vii). This kind of interaction between individuals raises questions concerning deeply held assumptions about expectations, meaning, and identity. Dialogue depends on the sustained serious attention of the individuals involved and it must be sustained over time in order to surface the assumptions that are present in the group. Through recognizing these assumptions individuals may gain new understanding of their thought processes and break out of the identity constraints that inhibit them. For example, as discussed above, organizational identity can be thought of in terms of the organization's position within an established set of categories that define an industry, for example "we are a salmon farming company". Identity change would occur in the context of dialogue that challenges the dominant expectations, meanings and scripts attached to identity such as "salmon farmers and environmentalists are enemies". The questions prompted by dialogue drive change by creating identity discrepant cues and novel interactions like, "salmon farmers and environmentalists collaborate" and generate a sense of identity amongst dialogue participants, as in "salmon farmers and environmentalists care about the marine environment" (i.e. Rao, Monin, & Durand, 2003).

Participants in the dialogue can begin to understand the extent to which they are behaving automatically based on their scripted interpretations. With such understanding Bohm (1996) suggests that defensive posturing can diminish and deep collective learning is then possible, although not assured. It is through interaction with others that individuals are able to break out of scripted beliefs and behaviours and Bohm (1996) suggests that perhaps the only way to fundamentally change meanings and expectations, such as those related to identity, is through dialogue. As is the case with individuals, changes in organizational scripts result in modified

behaviour and may in due course alter organizations' perception of their identity. The more that the structures and mechanisms of engagement between the organizations make sustained dialogue, and hence a kind of joint sensemaking, possible the more likely there will be inter-organizational learning.

> *Proposition 3: The greater the levels of dialogue between the individuals from diverse organizations the greater the likelihood of cognitive change and hence integrated learning.*

In summary we propose that under certain conditions individuals will experiment with new behaviours, without changing their beliefs. Depending on their "repertoire" of identities and the stability of their organization's identity, individuals may be able to tap into scripts associated with a common social or role identity. This common identity provides common language and behaviours to guide their interaction. The likelihood that individuals will experiment with new behaviours also depends on their organization's identity and their level of identification with it. Individuals that identify strongly with an organization whose identity diverges from institutionalized notions of identity will be less constrained by the norms of their field, regardless of their individual beliefs. If these individuals persist in this changed behaviour they may be able to suspend their belief systems and explore new interpretations. This shift in interpretation facilitates dialogue and possibly the integration of new information (Bohm, 1996; Crossan et. al, 1999). The integration of new information at the group level makes inter-organizational learning possible. Therefore, inter-organizational learning is an unusual case where individual to individual learning can ultimately influence the learning that occurs in their respective organizations. It is the individuals and the social processes and practices, such as dialogue, through which they develop shared understandings that facilitate inter-organizational learning.

4.0 UNDERSTANDING THE PROCESS MODEL: SALMON FARMING IN BRITISH COLUMBIA

The relationship between identity and learning can perhaps be best understood through a story about learning between diverse organizations – that of the salmon farming industry in British Columbia, Canada (BC)[2]. The waterways of BC are highly politicized natural resources because of their impact on a host of social and economic phenomena including the habitat of the culturally iconic wild salmon and the rights of First Nations[3]. Almost from its inception the salmon farming industry in BC has been widely criticized for its salmon growing practices. Salmon farming[4] began in British Columbia in the 1970's and by the mid 1980s it grew rapidly. A diverse range of organizations beginning with commercial fishing companies, and later joined by environmentalists, sports fishermen and First Nations, criticized the industry and the

[2] This story is not represented as an accurate case history, rather it is an illustration of the process model; we do not employ it as empirical support for the model.

[3] First Nations are Canada's aboriginal people.

[4] Salmon farming, as practiced in BC, consisted of placing juvenile salmon (smolts) into large net cages in the ocean, feeding them fish meal for 18 to 24 months until they reached market weight, then harvesting and processing them.

provincial government[5] for what they viewed as the negative impact that salmon farming in open net cages[6] had on the marine habitat. Opposition to the industry gained momentum during the 1990's through government industry reviews, passage of strict regulations, increasingly negative media coverage, growing enmity of several First Nations, and increasing attacks by environmentalists, especially the Coastal Alliance for Aquaculture Reform (CAAR). During this period the typical response of the firms (their script) was to deny, dismiss or in some way discredit their critics and in particular CAAR's claims and to position themselves as sustainable businesses and the economic salvation of coastal communities.

By 2000 the industry was dominated by large, mostly foreign owned firms, Stolt, PanFish, Mainstream, a division of Cermaq, and Marine Harvest. Marine Harvest, in contrast to the low profile adopted by the Norwegian firms, referred to itself as a socially responsible company and had publicized the extent of its investment in BC. This was consistent with the collaborative and environmentally responsible identity of its Dutch parent company, Nutreco. As one corporate manager said "Dialogue is important to build trust ... you can only find a solution when you put different people with different backgrounds and different views of the world together... not the different disciplines within one company, but the NGOs and the government representatives and the scientists". Stolt, a Norwegian firm and the largest salmon farming company globally, described itself as an accountable, ethical, private company engaged in "cooperative research and development on ecosystem principles" and in its 2003 annual report committed "to follow our own conscience and set our own high standards". As one manager observed "Stolt was quieter … had a very high level of accountability, very good ethics and very profitable … but no so out there and not so much into the social issues ... kind of stayed back a bit".

Cermaq, a Norwegian firm, depicted itself as a vertically integrated global leader in the *business* of sustainable aquaculture. The company referred to itself as collaborative, and innovative, but with a clear rationale for collaboration: "we have a highly commercial focus ... we are increasingly collaborating on the basis of the licensing of exclusive rights, which enables unique product advantages". Mainstream was consistent with this economically responsible corporate identity. As one senior manager put it "we … act responsibly with respect to nature and society... However; sustainability also means running a profitable business, where we balance risks and opportunities based on our recognized strengths". Another manager described Mainstream as "a little quieter and we don't toot our own horn maybe nearly as much as we should".

Interestingly members describe CAAR as a cooperative, logical, strategic organization, typified by this comment "we have to make the sum greater than the individual parts... by having

[5] The provincial government granted the fish farming licenses and the ocean tenures to companies. The provincial and the federal government shared regulatory responsibility for the coastal area.

[6] From the earliest days of the debate environmentalists supported growing salmon in closed containment systems. The industry claims that technology is not economically or environmentally viable.

everybody pool all their information and work collaboratively we're able to take it (sea lice) ... to being one of the most prominent environmental issues in BC". In describing how CAAR develops a position, a senior member said "it has to be based on science and it has to be rational and you can use a million different tactics to deliver that message, some people use irrational tactics but the message can still be rational." These diverse organizations involved in the BC salmon farming industry apparently identified themselves with learning processes such as scientific research and development, and collaboration; this was particularly evident in their behaviour.

Over time one issue came to dominate interactions between the industry and its critics – the effects of sea lice. Each side of the debate supported their position with "science" and all claimed to be acting in the interest of marine habitat protection. In June 2004, under the threat of reactive regulation, a senior Stolt (later to be Marine Harvest) manager, a biologist by training, contacted CAAR. Stolt was motivated to ensure forthcoming regulation was fair and supported by good research. Like Mainstream, Stolt actively participated in collaborative research and development projects with universities and research institutes; however this was the first instance of a company attempting to work directly with an environmental group. The manager described the intent of this initial contact as, "let's learn together, let's share information, let's be as transparent as we can be within the context of business and let's let the science complete its work so that we're basing any policy decision on good solid science."

While CAAR acknowledged Stolt's self interest in approaching them, they also recognized an opportunity to gain access to proprietary knowledge of salmon farming that might be used to advance their agenda. A member of CAAR's science committee, a PhD in ecology, describes their motivation to "hopefully pinpoint some common understandings around lack of information and embark on some increased level of analysis and some pure science work that would inform the debate." With discussions proceeding in private, Stolt began posting sea-lice and water quality data on its web-site as "an educational opportunity for both researchers and the general public", providing further evidence of their commitment to learning processes. When Marine Harvest purchased Stolt in 2005, the private talks continued, culminating in the "Framework for Dialogue" agreement in January 2006.

The individuals involved from Marine Harvest and CAAR possessed a range of common social and role identities, biologists predominantly, but also coastal community residents. They seem to have been able to coalesce around the identity of "scientist" interested in protecting the marine habitat in BC. While this identity had hitherto differentiated them, the identity discrepant feedback from escalating environmentalist attacks, threats of punitive regulation, along with the acquisition by an organization publically and privately identified with broad collaboration, created the organizational identity instability necessary for the Marine Harvest representatives to activate a new script and consciously enact new behaviours. By emphasizing this relatively neutral identity in their interactions individuals could experiment with new cooperative behaviour without changing their beliefs. The identity of "scientist" also appeared to offer enough ambiguity to allow the individuals and organizations to agree on actions and enough specificity to provide some guidance to the conduct of those actions i.e. scripts.

Critically, the individuals involved in the development of the agreement identified with the research and learning processes emphasized by their organization identities. As one Marine Harvest manager commented, "this is why I'm pretty proud to work for Marine Harvest … we're working towards greater levels of sustainability. So, if these studies that we do poke us in the eye a bit, well, that means we have to learn from that; we have to change". Similarly the strength of individual identification with the organizational identity is illustrated by this description of CAAR as "the best coalition I've ever worked with in my life ... I always say it's an honour to work with that group."

Once the Framework for Dialogue had been developed the individuals and organizations could suspend their other social and role identities and "behave" according to the agreement, which was built around five scientific investigations and well established scientific protocols. They had moved from using the end products of science as a weapon against each other to using the scientific process as the mechanism through which they could cooperate. Science continued to provide a neutral and honourable identity with which all parties (individuals and organizations) could identify. It also provided sufficient ambiguity to allow the group to agree on action while retaining whatever individual beliefs that were needed to reach consensus.

Pan Fish acquired Marine Harvest in February 2006. Despite the state of flux caused by the acquisition, managers involved with the Framework continued their work pending direction from the new management. The company eventually declared its continued support of the Dialogue and subsequently consolidated all of its aquaculture operations under the name Marine Harvest promising to continue the practice of "leading the way with innovation and responsibility".

Within the first two years of working together, the level of trust and the nature of the interaction between the individuals involved and the organizations had changed. The following comment by a CAAR member is illustrative "we've learned to mutually respect each other for the work. My understanding of the complexity of managing salmon farms has gone way up… it is way harder than anyone would think." As well, knowledge about the sea lice issue appeared to have advanced due to the willingness of CAAR and Marine Harvest to work together and a peer reviewed article on sea lice incorporating Marine Harvest data was published in 2007.

The Dialogue process between Marine Harvest and CAAR was enthusiastically supported by local institutions, in particular government. Feedback from the environment very clearly challenged existing expectations. As a result of this support, Marine Harvest and CAAR likely experienced pressure to alter their cognitions in order to relieve the cognitive dissonance, thus promoting integration. This integration may provide the foundation for inter-organizational learning, at the local BC level.

By way of contrast, Mainstream has quietly focused its efforts on programs and collaborations intended to enhance competitive advantage and profitability. Its senior managers strongly identified with the relatively more institutionalized organizational identity of economically sustainability first. One manager took great pride in stating "I don't necessarily believe we are the best at what we do but I'd say we do it definitely better than the rest ... we run our business better" and "... we have more revenue than the largest company (in Canada)". As another manager put it "a lot of work has been done outside of the media limelight … we weren't

here to win an award; we're here to do our business". While Mainstream management claimed "to be continually looking for innovation and development" they again expressed a more institutionalized view of what constituted a legitimate collaborator, stating for example "our goal is partnerships and relationships with the First Nations in whose territory we operate" and "some of the big major equipment suppliers … there's a lot of innovation and collaboration that goes on" and "we can start working on the collaborations and the communication with outside industries... there's a collaboration that's starting … with one of the mining companies". Their strong identification with the organization's institutionalized identity as a business directed their behaviour and their subsequent learning.

In summary, Stolt viewed itself as a collaborative research organization particularly within the aquaculture research and development community. They consulted directly and privately with organizations with recognized expertise, until the sea lice issue. The extent of the feedback around the sea lice issue prompted a Stolt manager to behave differently and contact CAAR. Marine Harvest also viewed itself as a collaborative research organization. However, they consistently enacted their identity as a facilitator of dialogue, especially when confronted with a new situation or a problem. They interacted widely and publically in the industry, with government and with stakeholder groups. CAAR, in a similar vein, sees itself as a collaborative organization that is able to navigate/negotiate difficult relationships and coordinate research. The alignment between key behavioural aspects of the organizational identities of Stolt and later Marine Harvest and CAAR supported and sustained behavioural change and experimental learning. Over time the organizations appear to have integrated some of their learning, at least with regard to this method of knowledge creation (peer reviewed articles, new joint venture pursuing further research). In contrast, Mainstream viewed itself as an "industrial research and development" organization and as such continued to collaborate with more institutionally legitimate partners consistent with its identity as a profitable business first and foremost.

5.0 IMPLICATIONS FOR RESEARCH & MANAGEMENT

Research suggests that innovation comes from networking with a variety of partners (Pittaway et. al., 2004; Powell, et. al., 1996). This view is echoed by research on diversity at the group level that takes the perspective that distinctiveness and difference can create novelty, learning, and increase performance via the constructive exchange of information (Mannix & Neale, 2005). However, the majority of diversity research takes the perspective that individuals and groups place a high value on belonging and thus there are tensions created by heterogeneity within and between groups (Harrison & Klein, 2007; Jackson, Joshi & Erhardt, 2003; Mannix & Neale, 2005; Milliken & Martins, 1996). This research suggests there are significant challenges to engaging with diverse individuals and organizations and that organizational identity and social and role identities underpin many of the tensions. In this study we link the processes of inter-organizational learning with innovation and seek to advance our knowledge of their micro-foundations. We first consider how organizations and their managers opt to alter their behaviour when interacting with diverse organizations and in so doing potentially create, share, and integrate knowledge that may ultimately result in innovation. We then consider the conditions that enable an organization to learn from other diverse organizations. Specifically, we explore the conditions that enable corporations and their managers to overcome the multi-level

constraints imposed on learning, and by extension innovation, by their social, role, and organization identities.

Depending on their "repertoire" of identities and the stability of their organizational identity, individuals may be able to tap into the scripts associated with a common social or role identity and experiment with new behaviours, without changing their beliefs (Inkpen & Crossan, 1995). Likewise, the likelihood that individuals will experiment with new behaviours depends on the basis of their organization's identity and their level of identification. Organizational identities that diverge from institutionalized norms are relatively more supportive of behaviour change, regardless of the beliefs of the individuals involved. If these individuals persist in this changed behaviour they may be able to suspend their belief systems and explore new interpretations. This shift in interpretation facilitates dialogue and possibly the integration of new information (Bohm, 1996; Crossan,et. al., 1999). The integration of new information at the group level may make organizational learning possible.

Interacting with diverse organizations provides an opportunity to learn. The ability to learn from diverse organizations perhaps even adversarial organizations has the potential to enhance firms' innovation capabilities. The main contributions of this study are in highlighting the importance of identity to learning between diverse organizations and suggesting conditions under which learning is more likely to occur. This study suggests that the interaction of individuals' identity and organizational identity may loosen the hold that any single identity has on behaviour. The resulting activation of a different script will precipitate a change in behaviour that may ultimately cause individual, organizational or inter-organizational learning. Secondarily this study answers the call by Felin and Foss (2006) to link organizational innovation variables with their micro-foundations.

This work stresses the importance of the relationship between learning, innovation and identity. Both organizational identity and organizational learning are built on a foundation of individual attention, interpretation and integration. Both concepts have behavioural as well as cognitive components and in both cases their behavioural aspects have received limited attention from researchers to date. The presence of diversity brings behaviour to the foreground in learning theories, while at the same time emphasizing the processes of identity protection and maintenance. This work elevates the importance of behaviour and suggests that it depends on the identities that organizations and individuals activate in response to a situation. Unless we understand how individual and organizational identities are connected to behaviour it is hard to understand their impact on learning, and by extension innovation. In addition, in the case of interactions between diverse organizations, learning may depend on the ability of individuals to come together through common behaviours or activities. The common cognitive and behavioural scripts either prescribed by communities or co-created by individuals engaged in a common task may hold the key to sustained behavioural change, which may generate cognitive change and perhaps a shift in identity.

In addition to contributing to research this study also contributes to practice. If through interaction with diverse organizations, corporate antennae are more attuned to social trends and sensitivities, alerting managers to risks and opportunities they might not otherwise have spotted, organizational capabilities will likely increase. More and more firms are expected to participate

in multiparty initiatives, such as The Extractive Industries Transparency Initiative, set up to manage corruption in resource rich countries, the Forest Stewardship Council, set up to certify sustainable forestry practices, and the Kimberley Process, an attempt to curtail trade in blood diamonds, among others. Participation in these initiatives can be time consuming and costly. We believe that connections identified here will be relevant to a range of situations where inter-organizational learning is challenged by the diversity of the organizations involved. The insights from this research will be an important step in understanding ways in which firms can consider and integrate the range of perspectives likely to surface in those initiatives, with a view to increasing knowledge and potentially contributing to their innovative capabilities.

Further research is required to identify the magnitude of identity discrepant feedback that is required to initiate a change in behaviour. For instance, is a threat to reputation more likely to promote change than the prospect of financial loss? Are there professional practices that are more conducive to inter-organizational learning than others? For example, in a group situation, scientists have been identified as being particularly adept at using diversity to advantage (Pelz, 1956). Testing the validity of our conclusions requires longitudinal mapping of interactions and inter-organizational learning between diverse organizations. This could involve multiple case studies of firms in industries and situations with a history of interactions such as ongoing multi-party initiatives.

6.0 CONCLUSION

Current theory predicts that a firm's ability to explore new perspectives is constrained externally by societal and industry expectations and internally by social and role identities as well as by organizational identity. In a similar vein, research predicts that in the face of real or perceived threats members become more identified with their groups and more distrustful of the group. Yet we see evidence of organizations overcoming these constraints and learning from diverse organizations. This research examined the processes of organizational learning between diverse organizations and the role of identity for such learning. We put forward that in these situations the behaviours enacted by an individual or organization can be as important to inter-organizational learning as its beliefs. The insights in this paper are an important step in understanding ways in which organizations can consider and integrate diverse perspectives.

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