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When neighboring disciplines fail to learn from each other: The case of innovation and project management research

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ABSTRACT

As knowledge production becomes more specialized, studying complex and multi-faceted empirical realities becomes more difficult. This has created a growing need for cross-fertilization and collaboration between research disciplines. According to prior studies, the sharing of concepts, ideas and empirical domains with other disciplines may promote cross-fertilization. We challenge this one-sided view. Based on an analysis of the parallel development of the neighboring disciplines of innovation studies and project management, we show that the sharing of concepts and empirical domains can have ambivalent effects. Under conditions of ideological distancing, shared concepts and domains will be narrowly assimilated – an effect we call ‘encapsulation’ – which creates an illusion of sharing, while promoting further self-containment. By comparison, reflexive meta-theories and cross-disciplinary community-building will enable a form of sharing that promotes cross-fertilization. Our findings inform research on research specialization, cross-fertilization and effectiveness of interdisciplinary collaboration.

1. Introduction

Research disciplines typically develop through processes of specialization and fragmentation (Hoffmann et al., 2017; Siedlok et al., 2015). By “research discipline” we mean a topically, epistemologically and institutionally demarcated field of study that is maintained by an affiliated community of scholars. As disciplines co-evolve they become associated with particular research questions, associations, journals, university departments and educational programs. Disciplinary specialization promotes endogenous theory-building (Markoczy and Deeds, 2009), but often fails to address complex societal problems (Alvesson and Sandberg, 2014; Bitektine and Miller, 2015; Davis, 2015; March, 1996; Brusoni et al., 2001). Scholars have, therefore, called for integrative efforts (Berggren et al., 2011; Tell et al., 2016) to promote interdisciplinary research (Jacobs and Frickel, 2009) and cross-fertilization, i.e. processes through which disciplines can learn from each other to address complex and changing empirical realities (see also Corley et al., 2006). Such efforts have played an important role in nurturing scientific breakthroughs and developing novel research areas (Galison, 1997), but research bodies and policy-makers also continue to face challenges in making interdisciplinary collaboration and learning effective (Raasch et al., 2013; DeJong et al., 2016; Hoffmann et al.,

2017). Our study aims to improve our understanding of the critical mechanisms and barriers to cross-fertilization across disciplines.

Recent studies suggest that one core driver of cross-fertilization and new knowledge integration is the sharing of concepts, ideas and empirical domains with other disciplines (Zahra and Newey, 2009). For example, social science disciplines have benefited from borrowing concepts, theories and ideas from biology (Oswick et al., 2011). However, in many cases, the sharing of concepts, ideas and domains does not directly promote cross-fertilization (see also Corley et al., 2006). Consider, for instance, the disciplines of information systems, operations research and international business. They have shared a joint interest in IT-enabled global outsourcing, but have largely ignored each other’s contributions in that area (indicated by very limited cross-referencing of special issues in *Journal of Operations Management* in 2008, *Management of Information Systems Quarterly* in 2008, and *Journal of International Business Studies* in 2009). We seek to better understand under what conditions the sharing of concepts, ideas and empirical domains may promote cross-fertilization and when it does not.

We do so by examining neighboring disciplines that overlap significantly in topical interests, empirical domains and often even terminology. Despite such overlaps, neighboring disciplines often fail to acknowledge each other’s contributions (see e.g. Kuura et al., 2014).

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We examine this phenomenon for the specific case of innovation studies and project management research – two disciplines that are highly influential in management and organization studies (see e.g. Pettigrew, 2001; Fagerberg, 2004; Martin, 2012; Morris et al., 2011; Sydow et al., 2004). Both are concerned with the management of novelty and uncertainty, and they even have a common history in the study of large-scale defense projects in the 1940s and 1950s (Morris, 1994; Hughes, 1998). One particular interest they continue to share is the study of projects that are highly innovative. Yet even though both disciplines refer to the same concepts – projects and innovation – until recently there was very little mutual recognition and cross-referencing (Lenfle and Loch, 2010; Kwak and Anbari, 2009). We analyze the dynamics that have hindered cross-fertilization over several decades and those that have recently promoted cross-fertilization.

Based on our findings, we develop a generic theoretical model that specifies, based on the case of neighboring disciplines, when the sharing of concepts and empirical domains may promote cross-fertilization or reinforce self-containment. Our findings have important implications for understanding mechanisms of cross-fertilization and self-containment between disciplines, especially those with significantly overlapping concepts and empirical domains (Adler and Hansen, 2012; Floyd, 2008; Kuura et al., 2014). Generally, our findings inform research on the effectiveness of interdisciplinary collaboration (Jacobs and Fricke, 2009), especially by challenging and adding nuance to the idea that a ‘common language’ is important for knowledge exchange and learning (Galison, 1997).

2. The challenges of research specialization

As research disciplines evolve, they become increasingly specialized, often forming sub-disciplines which co-exist and contribute specialized knowledge under the umbrella of larger disciplines. The emergence of the discipline of management and organization studies, for example, has led to further specialization in sub-disciplines such as accounting, finance, human resource management, marketing, and supply chain management. Research specialization is often stimulated and reinforced by the functional and professional specialization in society (Haas, 1992; Payne, 2007). It is further solidified by the development of specialized concepts, theories, scholarly communities and journals (March, 1999). Specialization can be an important driver of knowledge production and endogenous theory-building (Jemison, 1981; Markoczy and Deeds, 2009). There is often little incentive to integrate bodies of knowledge as long as research specialization is reflected and supported by institutional specialization, as in the case of management sub-disciplines (Whitley, 1984). In contrast to ‘hard sciences’, there is also ambiguity surrounding research terminology used in the social sciences, leading to the emergence and co-existence of multiple paradigms (Zald, 1996).

Specialization can be effective when it reflects the nature of the research matter and aligns with the fragmentation of knowledge production. But it may prevent scholars from capturing complex and changing research problems and empirical realities (Davis, 2010; Knudsen, 2003; Weick, 1996; Kuura et al., 2014). There is an inherent tension between research specialization and the need for integration (Engwall, L., 1995; Zald, 1996; Greenwood, 2016; Knudsen, 2003; Whitley, 1984). In particular, specialization may discourage researchers from tackling large-scale societal problems, which tend to call for collaboration across disciplines (DeJong et al., 2016; Wagner et al., 2011). It may also restrict efforts to address more fundamental theoretical issues (Davies, 2014). March (1999), for example, argued that management and organization research was becoming more fragmented and losing its legitimacy as a field of study in part because of the reduced interaction with other disciplines (see also Engwall, L., 1995; Knudsen, 2003). This pattern of specialization and fragmentation has occurred elsewhere in other social science disciplines, such as economics, geography and linguistics, which have been accused of failing to address

society’s grand challenges (Boulding, 1986; Chomsky, 2000; Flyvbjerg, 2001).

Paradoxically, the more differentiated disciplines become, the more likely they will share topical interests and empirical domains, and become either temporary or permanent disciplinary neighbors. Being neighbors, however, does not mean that disciplines necessarily collaborate or develop the capacity to examine complex problems in more comprehensive ways. This is because in practice they often fail to learn from each other (Kuura et al., 2014). Next we consider challenges of cross-fertilization between research disciplines in more detail.

3. The challenges of cross-fertilization

Prior studies emphasize that the fragmentation of research disciplines can be circumvented by cross-fertilization (Floyd, 2008). Cross-fertilization involves the exchange of ideas and findings across disciplines enabling the address of complex and changing empirical realities. Cross-fertilization, which may occur without undermining the core value and identity of individual disciplines, is important because boundaries between organizational and scientific problems are becoming increasingly indistinct (e.g. Brusoni et al., 2001; Tell et al., 2016, Van de Ven, 2007). Disciplines are expected to develop interdisciplinary approaches to tackle society’s complex problems, such as climate change and poverty (Garud and Gehman, 2012; DeJong et al., 2016).

Cross-fertilization across disciplines can be promoted in multiple ways. For example, research programs may foster the formation of research teams from different areas (Polzer et al., 2009; Bitektine and Miller, 2015). Many initiatives have been launched to combine increasingly specialized knowledge and ensure that both long-term challenges and short-term problems can be addressed (Galison, 1997). In sustainability research, for example, various research programs have been combined to provide a more comprehensive analysis of contemporary sustainability problems (Hoffmann et al., 2017; Manning and Reinecke, 2016). Such programs are designed to create a synthesis of knowledge by establishing connections between knowledge domains and forging closer links amongst members of research teams (Carpenter et al., 2009). Yet, the ability to effectively design and organize such programs is difficult to foresee (Adler et al., 2009; Bammer, 2008; Brewer, 1999; Pohl, 2008). Teams that are composed of members from different disciplines may suffer from a ‘clash of cultures’ as scholars adhere to the different, sometimes conflicting norms and values of their epistemic communities (Haas, 1992; Knorr-Cetina, 1999). Such communities may have their own ways of defining problems, collecting and interpreting data, making collaboration across disciplines difficult, even if they share an interest in the same problem domains.

More recently another mechanism of cross-fertilization has been discussed that promises to stimulate learning and exchange effectively by importing, exporting and sharing of ideas and concepts (see e.g. Boxenbaum and Rouleau, 2011; Sullivan et al., 2011). Zahra and Newey (2009) argue that ‘borrowing’ from other disciplines may assist empirical research and the development of new theory. Oswick et al. (2011) show how the social sciences have benefitted from borrowing theories and insights from biology to advance their own theoretical frameworks. However, sharing important concepts and ideas does not mean that disciplines always learn from each other. Kuura et al. (2014) illustrate this for the case of project and entrepreneurship research which overlap in significant ways, such as sharing an interest in entrepreneurial projects. Studies like these argue that knowledge exchange is missing mainly because scholarly communities maintain their own paradigms (Kuhn, 1970) and criteria of relevance (Alvesson and Sandberg, 2013, 2014), including their own journals and ‘citation cartels’ (Gabriel, 2010; Vogel, 2012).

While such barriers to cross-fertilization might be important, we argue and show empirically that another, less understood mechanism may undermine the potential utility of sharing – the problem of

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