

How Useful Are the Strategic Tools We Teach in Business Schools?

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ABSTRACT Strategic tools are indispensable for business and competitive analysis. Yet we know very little about managers' internal logic as they put these tools into practical use. We situate our study in a business school context using action learning prior to the manifestation of practice to complement our understanding of practice. Using Personal Construct Theory and Repertory Grids, our mid-range theorizing showed that, contrary to current thinking about strategic tools, managers think in dualities (often paradoxically) and have a preference for multiple-tools-in-use, tools that provide different perspectives, peripheral vision, connected thinking, simultaneously help differentiate and integrate complex issues, and guide the thinking process. These findings are important for designing better tools and the nurturing of critical managerial competencies needed for a complicated world. Our study's focus also has wider implications for scholars as we see our own material evaluated by those who will put these lessons into practice.

Keywords: internal logic, management education, managerial cognition, personal construct theory, strategic tools, strategy-as-practice, usefulness of tools and theories

INTRODUCTION

How useful are the strategic tools and techniques we teach in business schools in helping practicing managers to make better decisions? This question goes to the heart of the relevance debate dominating the management field (Anderson et al., 2001; Ghoshal, 2005; Jarzabkowski et al., 2010b; Mintzberg, 2004; Pfeffer and Fong, 2002; Rynes et al., 2001; Walsh et al., 2007).

We focus on strategic tools and techniques because they form a critical and cognitively demanding element in the practice of effective strategy workers (Jarzabkowski, 2004; Jarzabkowski and Spee, 2009; Liedtka, 1998; Whittington, 1996, 2007). The literature on strategic tools has shown how these knowledge artefacts are used (and abused) in

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organizational settings, signalling that their use goes beyond mere analytical applications to more wide-ranging social and political implications (Jarzabkowski et al., 2010a). However, many of these noteworthy studies are based on snapshot survey data, which are merely descriptive and explore only the behavioural level. We contend that it is this very lack of understanding beyond the visible and observable layer of practice that results in a situation where the knowledge we produce ill-prepares practitioners who are striving for new ways of thinking and doing that addresses their everyday challenges (Mintzberg, 2004). Very little research has investigated the internal logic of practitioners to gain a deeper insight into how tools shape (and are shaped by) strategy workers (see Hodgkinson and Clarke, 2007; Jarzabkowski and Wilson, 2006; Whittington, 2006).

Sandberg and Tsoukas (2011) recently advocated the need for a deeper understanding of practical rationality (as opposed to a predominant reliance on scientific rationality) if we are really to grasp the logic of practice. We therefore contend in the present paper that, to understand the usefulness of strategic tools, we first need to understand a different type of logic at play (Bourdieu, 1990) – an internal logic to which managers resort through their collective embeddedness of knowledge schemas in terms of how they experience and interpret their everyday process of coping with what works and what does not. Only by understanding this internal logic can we come to comprehend fully whether the logics applied through our tools meet the needs of practicing managers, who are absorbed in their everyday coping with a world that is itself in a constant state of flux (Dreyfus, 1991; Heidegger, 1971; Kelly, 1955; Schatzki et al., 2001). Considering the messiness of engaging with the world, we would expect managers to prefer strategic tools that are anything but ‘simple’; specifically, we would expect them to prefer tools that allow them to think in complicated ways to address complex issues and challenges, or to look for tools specifically adapted to address the situated practice they currently face (Jarzabkowski and Wilson, 2006; Vaara and Whittington, 2012). Managers may also expect strategic tools that go beyond simply framing their thinking to delve into stimulating connections and interconnections with different types of information to help generate new insights into old and vexing problems. Further, they may look for tools that help them untangle and break down complex bundles of issues into understandable parts.

Whatever the preferences of the actors, once we gain a better understanding of this practical rationality, we can then begin to better theorize an understanding of what helps or hinders the effective performance of this particular strategic practice (Antonacopoulou, 2010; Feldman and Orlikowski, 2011). This will then allow us to design better tools to help practitioners address the burning issues of our time, which in turn has the potential to allow us to re-evaluate how we prepare managers for a complicated world (Grant, 2008). According to Sandberg and Tsoukas (2011), one way to achieve this is to create a temporary breakdown in the practice (designed by the researcher) to get practitioners to take a step back from their absorbed coping mode and to give them a chance to see how they actually think and communicate, in order to reveal to them and the researcher their internal logic of practice.

Yet, is the workplace the only context available to us to investigate such temporary breakdowns in managerial practice? Are there other contexts in which we could learn about praxis, practices, and practitioners, and still make meaningful advancements in the thinking and acting of strategy? Can other contexts provide complementary

understandings of practice beyond those provided by the actual study of practice itself? Several pioneers of the strategy field have suggested that the business school context, in which strategic management is taught, could provide an opportunity to develop this understanding (Antonacopoulou, 2010; Chia and Holt, 2008; Gulati, 2007; Jarzabkowski and Spee, 2009; Jarzabkowski and Whittington, 2008a, 2008b; Walsh, 2011). Researchers often have difficulty gaining access to practitioners and their organizations; yet, paradoxically, our classrooms (especially at the master's level) are full of practicing managers with extensive work experience from a variety of organizations. This medium, although departing from mainstream practice tradition, provides a rare opportunity to engage with practitioners (away from their practice) and tap into their internal logic so that we may (together) develop better ways of thinking and doing prior to the manifestation of practice.

Moreover, real-world learning can be painful and costly given the potential need for huge resource commitment and risk of possible loss. Managers experience anxieties when learning in such intense environments, fearing negative consequences, and, hence, may be less able or willing to initiate new insights (Coutu, 2002; Gavetti and Rivkin, 2005). Placing managers in safer environments to develop learning behaviours and sharpen reflective and relational thinking skills through experiential learning in the business school context, where the consequences of failure are minimal, has the potential to inform and improve management practice (Greiner et al., 2003; Kolb, 1984; Roglio and Light, 2009; Schon, 1983).

The present study builds on these insights into the need to tap into practitioners' internal logic and the opportunities offered by the business school context to nurture a more engaged co-production of knowledge (Christensen and Carlile, 2009; Loyd et al., 2005). To achieve this, we leveraged strategy capstone courses to tap into managers' cognitions of the usefulness of strategic tools based on their actual experience with the tools in question through action learning, where participants are exposed to real organizational problems and asked to collect, analyse, and make recommendations based on real-time living data (Greiner et al., 2003; Tushman et al., 2007). This approach exposes students to some of the complexities of strategy as social action through the exercise of behaviour in action-taking experiences, as they do the learning themselves (Bower, 2008; Coghlan, 2011; Grant, 2008).

LITERATURE ON STRATEGIC TOOLS

Key decision-makers are increasingly resorting to the aid of management tools and techniques to deal with uncertainty when undertaking business and competitive analysis, so that their decisions can lead to better processes, products, and services and thus to superior firm performance (Davenport et al., 2010; Fleisher and Bensoussan, 2007; Jarzabkowski and Spee, 2009; Rigby and Bilodeau, 2011). Such analyses can form the basis of a firm's competitive advantage. In effect, the whole purpose of strategic tools is to aid and guide managerial decision making – ideally, allowing managers to make better, more informed decisions as a result of their use. They are a means to an end, and when used appropriately can provide a powerful and persuasive medium for communicating directions for strategic action (Chesley and Wenger, 1999; Langley, 1989).

The topics covered in strategy textbooks and course outlines shared amongst Business Policy and Strategy members of the Academy of Management (see <http://www.bpsdiv.org/teaching/syllabi/mba-courses>) indicate that the most popular tools taught in strategy capstone courses include Porter's Five Forces Model and Generic Strategies; SWOT; the Resource-Based View of the firm; Value Chain; Boston Consulting Group (BCG) Matrix; McKinsey 7S Framework; Balanced Scorecard; Bowman's Strategy Clock; Strategic Group Maps; Strategic Factor Analysis Summary (SFAS); and Blue Ocean Four Action Framework (Kachra and Schnietz, 2008). However, we know very little about how users perceive these tools as they put them to practical use. As such, our study examines the perceived usefulness of these tools in helping managers make better decisions through better analysis.

A number of studies provide interesting insights into how many, which, and when certain tools are used in the strategy-making process, along with who uses these tools (see, for example, Clark, 1997; Jarzabkowski et al., 2010b; Rigby and Bilodeau, 2011; Stenfors, 2007). Similarly, Frost (2003) asserted that tools perform a number of different functions, often simultaneously. These may include information generation, providing a structure for analysis of complex issues, and encouraging dialogue and exchange of ideas between and within managerial levels, for symbolic purposes and as a means of formal analysis in search of objectivity (Hodgkinson and Wright, 2002; Langley, 1989; March, 2006; Spee and Jarzabkowski, 2009; Whittington et al., 2006). Chesley and Wenger (1999) also suggested that strategic tools need to be used differently according to the needs and business context of specific problems (see also Stenfors, 2007, on tools used to improve organizational efficiency and tools used for innovation and creativity).

Lozeau et al. (2002) suggested that when such tools are put into practice, they are usually reinterpreted at the point where social reconstruction takes place, creating a corruption of the management technique being applied (Jarzabkowski and Wilson, 2006). They concluded that organizational practitioners should perhaps develop their own tools and techniques, given their own unique situated contexts, '... rather than borrowing and bastardizing techniques from elsewhere' (Lozeau et al., 2002, p. 560).

Whittington (2004) called for a deeper understanding of how new strategic tools and concepts (what he termed *strategy technologies*) are developed, tested, and marketed, and, in particular, how these tools are used in practice. He also argued that, regardless of the connection between activities and firm outcomes, managers need the right tools and skills to perform the real work of strategizing. Gunn and Williams (2007) also argued that a richer understanding of the tools is in the best interest of managers because of the advantage the tools provide in helping decision-makers cope with cognitive limitations when facing extremely complex and unstable environments (Gavetti and Rivkin, 2005; Jarzabkowski and Wilson, 2006). This bounded rationality brings to the surface issues of managerial sensemaking and the roles strategic tools play in assisting managers to improve the frame and structure used to shape the influx of information they face (Grant, 2008). Rigby and Bilodeau (2011) also highlighted the idea that the successful use of tools requires a deep understanding of the pros and cons of each tool, the creativity to integrate the right tool(s) in the right way at the right time, and the right people and skills to develop the tools to meet the company's objectives (Jarratt and Stiles, 2010; Orndoff, 2002; Stenfors, 2007).

Calori's (1998) thought-provoking piece, on the other hand, provided a critique of these orthodox strategic management models based on their bias towards thinking to the detriment of other forms of reasoning, bias towards binary logic (either/or thinking), and failure to recognize feeling as a source of reason. He further advocated for the urgent need to renew management models, recipes, and theories (see also Hamel and Prahalad, 1989; Jacobides, 2010). Worren et al. (2002) similarly cautioned scholars to be more pragmatic in our pursuit of more useful theories and models to help practicing managers. They argued that conceptual tools, while helping construct a simplified frame of reality, might make it difficult for users to think outside that frame once it has been established, reinforcing entrenched mental models that elaborate and extend issues already known (see also Hill and Westbrook, 1997; Seeger, 2006). Taken together, these conceptualizations based on actual practice provide interesting insights into how tools are used when studied at close range.

EXPLORING THE INTERNAL LOGIC OF TOOL USE

Jarzabkowski and Wilson's (2006) early work on strategic tools was particularly insightful in that they articulated the idea that before theoretical knowledge is introduced to practitioners, it is first 'simplified' into knowledge artefacts (as, for example, in Porter's Five Forces Model). However, although practitioners may disregard the original theoretical underpinnings, tools are fundamentally heuristic devices designed to aid, guide, and inform managerial thinking (see Pelz, 1978). They are seen as 'conceptual schemas', 'psychological tools', and 'tools for thinking' used to assist strategists in generating meaning from their complex surroundings (Grant, 2003; Gray, 2007; Jarzabkowski, 2004; Orndoff, 2002; Wilson and Jarzabkowski, 2004).

Yet, as our world becomes more global, interconnected, hyper-competitive, and fast paced, dealing with increasing competing demands, contradictions and opposing tensions has become more prominent (*Harvard Business Review*, 2011a; Smith et al., 2010). In such environments, organizations must continually innovate by reinventing themselves if they are to survive and sustain their competitive advantage. Under such increasingly complex and uncertain environments, managers are expected to recognize and embrace a more complicated (*not simplified*) understanding of an (e)merging world(s) (Bartunek et al., 1983; Martin, 2007a; Plambeck and Weber, 2009; Raisch et al., 2009), and as such, need at their disposal tools and techniques for better decision making.

Under such conditions we envisage more heightened expectations by managers to look for tools and techniques that can help them competently deal with such ambiguities and paradoxical complexities in clearly guiding their thinking process (Andriopoulos and Lewis, 2010; Smith and Lewis, 2011). Managers no longer have the luxury of dealing with a few key issues at a time. They must deal with a multitude of issues from different directions simultaneously. This means they must not only keep their eyes on the target, but also leave their minds open to what is happening around them at the periphery (Cooper, 2005; Day and Schoemaker, 2005; *Harvard Business Review*, 2011b; Cunha and Chia, 2007; Prahalad, 2004). Dealing with complicated issues requires the need to break them down to more manageable parts so that managers can clearly see the interconnections between different sources of information. It also requires that each issue

is examined from different angles and simultaneously integrate ideas (reconnecting the dots) to generate new insight to get a sense of the bigger picture (Andriopoulos and Lewis, 2009; Durand and Calori, 2006; Miron-Spektor et al., 2011). Strategic tools and techniques that help managers deal with these complexities and uncertainties will be much sought after.

Given calls to address practical problems from different theoretical perspectives and the constructivist shift in strategy practice research (see Golsorkhi et al., 2010; Grand et al., 2010; Jarzabkowski, 2004; Jarzabkowski and Spee, 2009; Jarzabkowski et al., 2007; Mir and Watson, 2000), we employed Personal Construct Theory and its accompanying Repertory Grid methodology to capture managers' internal logic (Kalekin-Fishman and Walker, 1996; Kelly, 1955; Walker and Winter, 2007).

Understanding Strategic Tools Using Personal Constructs

Personal Construct Theory is the analysis of the system of constructs an individual uses to analyse, understand, structure, and make sense of changes in his or her environment(s). Kelly (1955) developed this theory around a Fundamental Postulate which states that 'a person's processes are psychologically channelized by the ways in which he anticipates events'. (Sandberg and Tsoukas (2011, p. 41), in reference to practical rationality, also noted that 'to practice is to anticipate' and that researchers should look for families of resemblances – that is, look for similarities and differences among the empirical phenomena under investigation.) Based on this postulate, Kelly articulates his theory through several corollaries: he talks about the importance of people's construct systems of beliefs, which are arranged in a hierarchical order. Each permeable construct is convenient for the anticipation of a finite range of events. Constructs are the language we use, and hence they represent the way we see/anticipate events by construing their replication; there can be alternative ways of seeing (*Constructive Alternativism*) based on lived experience. To 'construe' means to 'look at' as well as to 'deal with'. These constructs are always bi-polar because Kelly (1955) believed that we make sense of the way we see the world based on similarities and differences. Hence, it is paramount to see constructs in their bi-polarity, because simply focusing on either pole, *per se*, misses the vitality of the relation between them (Butt, 2004).

However, such dichotomies are not necessarily independent opposites or dualisms (Kelly, 1955, p. 872); rather, they co-exist interdependently, representing the inner dimensions/(ex)tensions (interconnected dualities) of a person that form the foundation for broadening thinking and action (see Antonacopoulou, 2010, on the relational mode of knowing based on phronesis). In fact, the juxtaposition of seemingly opposite poles does not denote cancellation of possibilities, but rather the potential creation of new possibilities (Farjoun, 2010). From this bi-polarity of construing, the person chooses that side of the construct pole that best reflects his motivation – the side which has a greater possibility for extending and defining his system.

Through these ongoing experiences and interactions, perpetually making choices in relation to others, objects, events, and situations (see Chen and Miller, 2011; Cooper, 2005; Ingold, 2000; Wright and Lam, 2002), we end up behaving like 'scientists', always practicing, testing, and retesting (validating, invalidating, and revalidating) our

fragmented views of the world, with some constructs contradicted, others confirmed, some rejected, yet new ones (e)merge. In this respect, Kelly believed that our everyday engagement with the world as it presents itself in front of us is primarily pre-reflective (not always deliberate), but, nevertheless, intentional. Our thoughts, feelings, and actions are intimately related, as constructs are embedded in the action itself (Butt, 2004). Hence, as a person successively construes in action the replication of events, his construct system will also change.

The person Kelly (1955) theorized about is really a person-in-relation through direct engagement with an intersubjective world (Kalekin-Fishman and Walker, 1996; Kelly, 1955, p. 503) where it is possible for an individual to construe the world in ways common to themselves and others. However, at the same time, if that person's construing is different from that of others, the person needs to be able to relate to and understand, to a reasonable degree, other people's construing in order to be part of a socially constructed world. In fact, Kelly called his theory a Theory of *Personal Constructs* to emphasize that we take responsibility for our own construct systems. If our construing does not work as anticipated or is not validated, then we need to reconstruct our system to bring new meaning to our world in order to make sense of it so that we may better cope within it. Hence, if we can understand someone's construct system (their internal logic of practicing in the world), we can better understand that individual, and hence anticipate his or her behaviour.

Our study, therefore, builds theory around the dimensions/dualities that drive managers' internal construct systems when they carry out the important practice of strategic analysis using strategic tools. Without an understanding of these interconnected dualities, researchers lack critical insights into the cognitive building blocks at the individual level, which gives rise to group-level and organizational patterns of likes or dislikes regarding the use of strategic tools that has received the majority of attention in previous work. Indeed, our focus is on this practice because practice defines the person (and so too the person defines the practice) (Feldman and Orlikowski, 2011; Orlikowski, 2002). Hence, it is important to see how this practice is understood by capturing tool users' internal logic to reveal the thinking and feeling entwined in the action. As Burr and Butt (1992, p. 69) so nicely put it, '... it is not events themselves which influence or mould people, torment or terrify them, or make them deliriously happy. It is the meaning in which these events are invested by the individual which is the potent ingredient'.

In this respects, Hodgkinson and Clarke's (2007) conceptual piece is particularly noteworthy because they put forward the idea that if the strategy-as-practice agenda is to seek a better understanding of what strategy workers 'do' in the performance of their praxis through the use of practices, then simply observing or interviewing strategy workers at close range is not enough. Instead, we need to understand what lies behind the actions and interactions of the 'doing of strategic work' by capturing people's *internal logic* as they experience events (see Chia and Rasche, 2010; Gray, 2007; Kelly, 1955; Sandberg and Tsoukas, 2011; Schon, 1983; Yanow and Tsoukas, 2009). This means attention must be drawn (Ocasio, 2011) to more psychological theories (Hodgkinson and Healey, 2008) and psychometrically robust methods (Walsh, 1995; Wright, 2006) to allow deeper insight into the cognitive and emotional importance of strategy workers' behaviours (Hodgkinson and Sparrow, 2002).

Given the gap in the strategic tools literature and the theoretical expectations we set out early in our paper, we investigate not just *how useful tools are*, but also *in what ways are they useful?* In this respect, we address the following research questions prior to the manifestation of practice: (1) In the process of engaging with strategic tools during action learning, what bi-polar constructs do managers use in making judgment calls about a tool's usefulness when undertaking strategic analysis? (2a) What are the core explanatory perceptual dimensions that drive managers' internal logic when carrying out strategic analysis using strategic tools? (2b) Given these core dimensions, which strategic tools are perceived to be more or less useful in aiding managers with strategic analysis to help them make better decisions?

METHODS

Sample

Respondents came from three separate semester cohorts of final-year capstone strategy courses taught at a research business school. All 46 managers enrolled in the capstone strategy courses were engaged in the strategizing process at their respective organizations. They were all full-time managers and attended classes in the evenings. There were 21 female and 25 male managers in the study, with an average of 15 years' work experience and an average of 5 years' experience working for their present organizations; 10 per cent were in top management roles, 70 per cent in middle management, and the remaining 20 per cent in junior management. Industry coverage included textiles, manufacturing and trading, engineering, medical devices and sourcing, IT, financial services, and the public sector. Job titles included chief financial officer, managing director, director, general sales manager, group HR manager, product manager, and assistant sales manager.

Research Design

Our unit of analysis is the use of 12 popular strategic tools found in leading strategy textbooks and assessed in strategy capstone courses at the business school (see, for example, Angwin et al., 2007; Hitt et al., 2007; Johnson et al., 2011; Kachra and Schnietz, 2008). We further added a thirteenth ('preferred') tool, fundamentally to ask managers about the 'type of strategic tool/technique they preferred to use in helping them do better analysis'. This particular tool may or may not exist, but provided a good opportunity to gauge managers' desired tool and how it differed from the actual ones. The backbone of the strategy capstone course in the present study used Wheelen and Hunger's (2008) strategic audit framework to guide managers through the various stages of the strategy-making process, and this also helped to signify when certain strategic tools were used within the process. To add more reality through action learning, manager project groups were assigned a locally listed company and the contact details of a member of its board of directors who had agreed to be interviewed by the respective groups in return for a strategic audit report (with recommendations) using the strategic tools taught in the course (Greiner et al., 2003).

The lead author was the strategy teacher, who taught all the respondent managers in the present study. To be consistent and avoid any bias in teaching towards any of the 12 tools, the teacher provided balanced coverage of each tool (source, purpose, nature, and application in a business context). To validate the quality of the teaching and ensure the consistency of instructional techniques, we carried out a brief peer evaluation of the teaching. The result of this assessment did not show any bias or prejudice towards any of the 12 tools.

At the end of each 14-week teaching term, we distributed a short, one-page questionnaire to collect students' personal data and overall ratings of the usefulness of each of the 12 strategic tools they applied as part of their task of conducting a full strategic audit report of a listed company. Each participant also received, in advance, a 'pledge of confidentiality' signed by the lead researcher, ensuring that no information shared would be revealed to any third party and that results would be in aggregate form so that no one could identify what any individual had said. We also promised, as a token of appreciation, the results of our findings to all participants.

Repertory Grid Procedure

Managers were each supplied with thirteen 4" × 5" laminated cards. Twelve of the cards each featured a picture and the name of one of the strategic tool elements for construct elicitation. The 'preferred' tool card did not have a picture, but asked managers to think about the type of tool they would prefer to help them conduct a better analysis. Participants were specifically instructed *only* to comment on the 'original tools/models' as explained in the textbooks and class discussions, and to mention in what way the tools actually helped them generate better analysis for decision-making. It must be emphasized at this point that we were not looking for 'right' or 'wrong' answers, because the focus of our study (irrespective of a tool's purpose or its place in the strategy-making process) is to elicit managers' thinking based on their experience with each tool in the performance of strategic analysis. Moreover, it is important to note that the repertory grid procedure is well known for its minimum researcher bias because it is theoretically grounded to elicit a person's own theories-in-use based on his or her own experience. Each respondent is asked to tell it as it is, not as it should be or as the researcher would like it to be (Easterby-Smith et al., 1996; Fransella and Bannister, 1977; Ginsberg, 1989, 1990; Kelly, 1955; Stewart and Stewart, 1981; Walsh, 1995).

Each manager was asked to '*visualize*' themselves back in their project groups carrying out strategic analysis using the strategic tools. Elements were provided three at a time; for example:

E1 Porter's Five Forces **E2** VRIO Framework **E3** SFAS Framework

At each time, we asked the question, 'In what way are any two of these similar, but different from the third, in terms of how useful (or not useful) they are in helping you perform better analysis so that you can reach a better decision?'

A sample response is: 'Elements E1 and E3 are similar because they help me to gain a full picture, whereas E2 (VRIO Framework) is not as useful because it can't give

me a full picture'. Hence, (1 2 3), the elicited bi-polar construct is 'Help me to gain full picture vs. can't give me a full picture' (Note that we elicited this *verbatim*). In the true spirit of Kelly's theory, comparing two things that are perceived to be similar against a third that is perceived to be different does not necessarily produce an opposite effect against the similar; bi-polarity of construction does not necessarily mean opposition.

Once as many constructs as possible were elicited using different triadic combinations of the 13 strategic tools and the process of laddering up and down a person's construct system for deeper meaning was complete (Bourne and Jenkins, 2005; Hinkle, 1965), respondents rated each of the 13 elements using a five-point scale based on their own elicited bi-polar constructs as semantic differentials. Figure 1 shows a sample of a completed repertory grid which we used to capture the internal logic from a senior manager. Once all strategy tool elements were rated, the manager was asked to choose the preferred side of the bi-polar constructs for helping him or her to perform better analysis to reach a better decision. These choices are indicated with a checkmark on the grid (and subsequently with an asterisk, in our results section). Kelly (1955) referred to this process of rating the elements based on the elicited bi-polar constructs as 'putting numbers to words'. Each repertory grid interview lasted an average of 60–75 minutes.

Data Analysis

Building on past practice in the literature (Cammock et al., 1995; Eisenhardt, 1989; Van Maanen, 1979; Wright, 2008) we analysed our dataset consistent with the aims of our study. In developing our mid-range theory on revealing the internal logic of strategic tools usefulness, we carried out eight phases, as outlined in Table I. In particular, after several pilot tests of the grid technique to ensure that we were eliciting managers' practical coping based on their actual experiences using tools through action learning, we administered the grid to our sample, eliciting a total of 455 constructs. These were typed into an Excel file, ensuring that each elicited construct with its accompanying ratings given by the managers was coded. We then looked for emerging themes and patterns from this list of constructs, and came up with 19 themes (collective embeddedness of knowledge schemas). Table II, using managers' own language (*verbatim*), provides an example of how one collective construct was labelled based on 28 individually elicited constructs from within our group of managers.

These themes, along with their respective average ratings, were then entered into the RepGrid program for further analysis (Centre for Person Computer Studies, 2009). We then looked for core perceptual dimensions from the construct loading table and themes generated from the construct correlation table. At each phase of our data analysis, we pushed to find deeper underlying themes (Gioia and Chittipeddi, 1991; Maitlis and Lawrence, 2007; Rouleau, 2005; Wright, 2006). Phases 6 and 7 allowed us to identify these meta-themes. Finally, mapping all our major findings alongside each other (results from *construct* poles on the left and those from *contrast* poles on the right), we were able to see interesting connections between the results that allowed us to conceptualize, in graphic form, managers' deep-seated internal logic of tool use (Phase 8). We now turn to our findings.

Your Actual CURRENT Experience with 13 Strategic Tools / Techniques Applied to a Listed Company. NOT WHAT SHOULD BE!													
Construct Pole Emergent Pole													
Similar 1													
Triads	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10	E11	E12	E13
r 1.2.3. help me to gain more full picture	1	✓	1	5	1	2	4	3	4	2	2	4	1
r 4.5.6. help me to decide whether have capability to achieve	2	✓	2	1	5	1	4	2	2	4	1	4	4
r 7.8.9. better understand how organization functions	3	✓	4	1	3	1	2	2	5	1	2	4	4
r 1.4.7. gave me more deep understanding	4	✓	1	1	2	1	4	2	5	2	1	4	1
r 2.5.8. better understanding of company positioning	5	✓	1	1	3	4	5	2	3	1	4	3	4
r 3.6.9. more specific way - help us to fine-tune	6	✓	6	✓	2	5	2	2	1	4	2	1	4
r 10.11.12. will help me to further justify decisions to go further or not	7	✓	3	2	2	3	2	4	2	2	1	1	5
r 7.10.13. help me to look from different areas	8	✓	1	4	3	2	3	2	2	4	1	1	2
r 9.11.13. help me see more clearly around me	9	✓	2	3	2	3	4	2	3	3	1	2	1
r 6.9.12. give me clear picture what I'm planning and what I should do	10	✓	2	1	3	1	3	1	4	2	1	3	1
Rating of 3 can also mean = does not apply													
Contrast Pole Implicit Pole													
Suggested Systematic Random Triads of 13 Strategic Tools elements													
1 2 3 4 5 6 7 8 9 10 11 12 13													

Figure 1. Capturing the internal logic of tools use through action learning (sample of one completed repertory grid from a senior manager with 15+ years experience). The 13 strategic tools supplied in the present study are listed in the middle of the grid (E1, E2, E3 . . . E13) for construct elicitation. Each row of the grid represents the systematic triadic comparisons of similarities and differences between the strategic tool elements (1,2,3, 4,5,6, 7,8,9 . . .). Manager's elicited bi-polar constructs are recorded verbatim for each triad in each row of the grid (similarities on the left, differences on the right). The manager then rates each of the 13 strategic tool elements on a 5-point scale using her own elicited bi-polar constructs. At the end of the interview, she is asked to choose one side of each of the elicited bi-polar construct she prefers that will help do better analysis.

Table I. Data collection and analysis protocol undertaken in the development of our conceptual framework

	<i>Sequence of phases undertaken</i>	<i>What we did at each phase of data analysis</i>
Phase 1	Pilot test	We undertook several pilot tests of the repertory grid technique to ensure quality and richness of the data being sort based on the purpose of our research. This included the elicitation of constructs based on supplied strategic tool elements, ratings of the grid and identification of respondents' preferred construct poles. We also input each interview result into the RepGrid program to generate construct loadings, correlation tables and cognitive maps to give us preliminary insights on refinements of our grid protocol (where needed).
Phase 2	Conduct RGT interviews	We then administered repertory grid interviews to 46 practicing managers. This produced a total of 455 individually elicited bi-polar constructs based on the focus of our study.
Phase 3	Code and input elicited constructs into Excel file	All interview results along with their respective ratings of the 13 strategic tools using their own elicited bi-polar constructs were typed into an Excel file and coded to identify each manager's constructs and ratings.
Phase 4	Sort elicited constructs into emerging themes	We then sorted the 455 elicited constructs into 19 emerging themes ensuring to label each theme based on the language of the respondents. This process produced a master collective grid consisting of 19 constructs and their corresponding average ratings for the 13 strategic tools under investigation.
Phase 5	Input collective grid into RepGrid program for further analysis	This collective grid was inputted into the RepGrid program to produce construct loadings, construct correlation tables and cognitive maps for further analysis. The construct loadings (Principal Component Analysis, PCA) (see Table III) allowed us to determine the underlying explanatory core perceptual dimensions that practicing managers used to make sense of the world. The construct correlation tables (we produced one for each of the 'construct' and 'contrast' poles) (see Table IV) provide us with another deeper look into key connections managers were making when they make sense of strategic tools usefulness.
Phase 6	Revisit emerging themes to identify emerging underlying themes (for construct poles on the left; and contrast poles on the right)	At this stage, we then went back to the 19 emerging themes (Table III) to see if there were any further underlying themes emerging from these master constructs. We carried out separate data reduction exercises for each of the preferred/positive construct poles (left-hand side) and negative/contrast poles (right-hand side). This data reduction approach resulted in four higher-order themes for the preferred construct poles and four higher-order themes for the contrast poles.
Phase 7	From Phases 5 and 6, list all key findings side by side	We then mapped the key findings of our study generated from Phase 6 and Phase 7 side by side. This showed a set of four higher-order themes each for the preferred construct and negative construct poles. To this we listed the two results from our construct loadings which help identify the core perceptual dimensions for the x - and y -axes (each has positive and negative bi-polar labels). Our positive and negative correlation tables each produced one underlying theme on what connections managers are making in regards to strategic tools usefulness.
Phase 8	Undertake final data reduction to generate meta-themes based on focus of the study	Based on seven major findings from our data analysis in Phase 7, we again resorted to undertake yet another process of data reduction to determine the existence of an even higher-order set of themes. This final step produced two mediating cognitive factors on the preferred side of what managers looked for in determining the usefulness of strategic tools, and a further two negative mediating cognitive factors leading to strategic tools not perceived as useful (see Figure 3).

Table II. Example of how one collective bi-polar construct is labelled from 28 individually elicited constructs generated from 46 managers^a

<i>Coded constructs of interviewees^b</i>		<i>C5 *Help us to know ourselves better</i>	<i>Collective Bi-polar construct^c</i> <i>↔ Cannot help people to think about company's value</i>
1	M78	*Better understand how organization function	↔ Tool cannot reflect whole organization business units
2	W79	*Can identify where my S/W is	↔ Don't give us detailed information
3	Z83	*Can know more about company	↔ I don't know how bad my position in market
4	Z69	*Can tell me which is strength and weakness	↔ Can only show structure and infrastructure
5	C19	*Clear understanding of values of organization	↔ We couldn't tell the key values of company
6	M61	*Get clear picture of company	↔ Just few points/not full picture of whole company
7	M27	*Give me clear picture of company situation	↔ Cannot get a clear idea on how to
8	M25r	*Give me idea how to understand objectives of company + measure	↔ Cannot get a clear pictures of the company
9	Z143	*Give us general idea of our situation	↔ Not concrete (it is like brainstorming)
10	A33	*Have in-depth understanding of what we have	↔ Doesn't give detail/only broad view
11	99r	*Help lower costs – cost savings	↔ Don't know environment outside
12	A39	*Help me know the company better	↔ Restricted to current procedures
13	A37	*Help us to know ourselves better	↔ We can hardly substantiate if our decision is right one
14	96	*I can see where is weakness and where is strength	↔ A bit subjective
15	R123	*Know what activities can reduce costs	↔ Can't forecast your results
16	R124	*Know what factors affect/control company	↔ Don't know what factors will affect you
17	R127	*Know where is your S/W situation	↔ Only position/don't give direction
18	M7	*Know yourself + target – guide us	↔ General/not that specific
19	s103	*Look inside/see what you are doing (not complicated)	↔ Faults inside model
20	M60	*Make people to think about company's value	↔ Cannot help people to think about company's value
21	M71	*More representative of whole company	↔ Create a lot of arguments when use it
22	Z134	*Provide me with more information about business	↔ Less information
23	Z74	*See all the pros and cons	↔ Only focus one issue
24	E9	*Tell you the internal strength	↔ Not flexible
25	Z119	*Understand strength and weakness of company	↔ Can't understand opportunity
26	96r	*We know the competitive advantage of company	↔ Don't believe figure
27	Z115	*We understand each function of company and produce strategy	↔ Just know the resources
28	Z159r	*You can see more things (positive and negative plus or minus)	↔ Only have one way to show

Notes: * Indicates managers' preferred pole when forced to choose which side of their own bi-polar elicited construct poles will help them make better decisions.

^a This table shows how 28 individually elicited constructs from a total of 455 elicited constructs from 46 managers generated one collective construct called: *help us to know ourselves better vs. cannot help to think about company's value'.

^b Individual managers' constructs were coded in order to identify which elicited construct belonged to which manager within an emergent collective group. Elicited constructs recorded verbatim using managers' own discourse. Four constructs were reversed (indicated with a letter 'r') in this group in order to have all preferred construct poles on the left side for easier grouping purposes and subsequent data analysis.

^c This table shows an example of how collective construct #5 (C5) was generated. For a full list of the 19 master constructs generated from a total of 455 constructs in this study, please refer to Table III. In determining this one collective construct, two independent researchers carefully studied all the construct poles on the left-hand side of the bi-polar construct and gave it a label after a consensus was reached. The same procedure was performed for the right-hand side of the contrast pole.

HOW MANAGERS EXPLAIN USEFULNESS OF STRATEGIC TOOLS

The first numeric column on the right of Table III provides a frequency count of the most commonly occurring themes elicited from our sample of 46 managers. Looking at only the preferred poles of the elicited bi-polar constructs (marked with an asterisk), we get a better sense of what managers look for when carrying out the important task of business and competitive analysis. Specifically (and using managers' own language), when tools were considered useful, they helped the user gain a better understanding of the competition and their own position (labelled in the table as construct one, C1), guided users to think from more diverse perspectives (C2), provided a broader/more comprehensive view (C3), were easy to use and communicate (C4), helped users to know themselves better (C5), generated a definite answer and indicated the next steps (C6), allowed users to look at things from different angles (C7), gave clear direction (C8), helped users to understand the company's competitive advantage (C9), and helped users to generate new ideas (C10). Additional aspects of importance to managers were the need for tools to provide systematic analysis (C11), be able to rate and prioritize options (C12), help users focus on critical factors (C13), divide areas up to provide a clear picture (C14), and show relationships between entities (C15). Just as important, tools were considered useful when they gave factors that we are not strong in (C16), helped to identify critical elements for future success (C17), and provided concrete information (C18), which in turn helped users differentiate their product and gain market share (C19). Taken together, these themes produced four clusters of usefulness centring around the notions of helping users understand their competitive advantage against competitors, the importance of performing analysis from different angles and understanding the interconnectivity between entities, reach conclusions and easily communicate those conclusions to others, and identify critical success factors.

Also of interest from these most frequently occurring themes are the 'contrast' poles of the elicited bi-polar constructs. Studying them more carefully provides a different way of seeing how tool users evaluate tool usefulness. Taken together, these issues produced four clusters describing when tools were not considered to be useful: when they did not help users evaluate the competitiveness of the company, provided less coverage of different areas/difficult to see around me, were difficult to use and did not help users to come to a conclusion, and did not provide sufficient guidance on decisions.

Interconnected Dualities of Good and Bad Tools

Further analysis of our data is shown in Table IV based on construct correlations across our 46 managers' preferred construct and (negative) contrast poles. The table represents the most important correlations (0.85 and above) based on managers' own ratings of the strategic tool elements in the present study. Key construct poles that correlate highly with other construct poles are highlighted in bold font, and the average correlations for each construct cluster are shown in bold underline, arranged from the highest at the top to the lowest at the bottom of the table. Of particular interest, on the left of the table, are the correlations that highlight when strategic tools help managers make better decisions through better analysis.

Table III. Frequency count and underlying explanatory core perceptual dimensions of strategic tools usefulness – construct loading on two principal components (46 managers)

		<i>Bi-polar constructs^a</i>	<i>Construct frequency</i>	<i>PrinCom 1 (x-axis)</i>	<i>PrinCom 2 (y-axis)</i>
C1	*Help me to understand competition and our own position	↔ Can not give me full picture of competition in the market	54	1.81	<u>1.17</u>
C2	*Guide me to think more different perspectives	↔ Didn't guide you to form good thinking path	46	2.85	-0.23
C3	*Help me to have a broad/comprehensive view	↔ Don't help me to see more clear around me	37	2.98	0.67
C4	*Easy to use/step by step/can easily communicate to others	↔ Not easy/complicated/can't pinpoint what is important	35	2.01	0.17
C5 ^b	*Help us to know ourselves better	↔ Cannot help people to think about company's value	28	2.37	-0.30
C6	*Can generate definite answer/conclusion and indicate what next	↔ Difficult to come to conclusion	26	2.37	0.06
C7	*Look at things in different angles	↔ Give me less dimensions and less coverage	23	<u>3.22</u>	-0.34
C8	*Give me very clear direction	↔ Does not provide sufficient guidance for decision	23	1.88	-0.31
C9	*Help me understand what my competitive advantages are	↔ Cannot evaluate competitiveness of company	23	1.68	<u>1.11</u>
C10	*Help me to come up with new ideas	↔ Doesn't stimulate me because no direction for me think new and practical	22	2.39	<u>1.56</u>
C11	*More systematic way to analyse situation	↔ Not systematic	20	<u>3.52</u>	-1.25
C12	*Can rate and prioritize them	↔ Can not help us to prioritize	19	2.22	-1.38
C13	*Help us to focus on important critical factors	↔ Too broad/not point out consensus on what to focus	18	2.78	-0.50
C14	*Divide all areas and give me clear picture	↔ Don't have clear picture on different areas	17	<u>3.39</u>	-0.24
C15	*Shows relations between entities	↔ No visual relation between entities	15	1.96	0.42
C16	*Give you factors what you are not strong in	↔ Too generic/cannot really focus on problem	14	<u>3.63</u>	-0.16
C17	*Help me to identify most critical elements for future success	↔ Limited – only give snapshot of now	14	2.91	0.89
C18	*More concrete detail and information	↔ Finding from tools already know/not something new	13	<u>3.15</u>	-0.49
C19	*Help me to differentiate product and gain market share	↔ No comparison with our competitors	8	2.08	0.60
Total number of elicited constructs from 46 practicing manager respondents			455		
Percentage of variance for each component				76.53	6.41

Notes: Constructs with the highest loadings are indicated in bold type set.

* Indicates respondents' preferred construct poles.

Principal Component 1 (x-axis) is labelled as *Divide all areas and give me clear picture vs. Don't have clear picture on different areas'.

Principal Component 2 (y-axis) is labelled as *Help me to come up with new ideas vs. Doesn't stimulate me because no direction for me to think new and practical'.

The first two components accounted for 82.94% of the total variance.

^a Elicited constructs recorded verbatim using managers' own discourse.

^b This collective construct, C5, was used as an example in Table II.

Table IV. How managers make connections between their elicited bi-polar constructs^a

<i>When strategic tools help us make better decisions (based on positive construct correlation table)</i>		<i>When strategic tools DON'T help us make better decisions (based on negative contrast correlation table)</i>	
C16^b	When tools give us factors we are not strong in	C16	When tools are too generic – can't focus on problem
0.97	Allow us to look at different angles	0.97	They provide less dimensions and coverage
0.95	Think different perspectives	0.95	Provide no guidance on good thinking
0.92	Divide areas and give clear picture	0.92	No clear picture on different areas
0.91	Know ourselves better	0.91	Can't help think about company value
0.90	Provide systematic analysis	0.90	Not systematic
0.89	Broad comprehensive view	0.89	Can't see clearly around me
0.92		0.92	
C7	When tools helps us look at different angles	C7	When tools provide less dimensions and coverage
0.97	Give factors not strong in	0.97	They are too generic – can't focus on problem
0.93	Divide areas and give clear picture	0.93	Not systematic
0.93	Provide systematic analysis	0.93	No clear picture on different areas
0.92	Help focus on critical factors	0.92	Too broad – not clear what to focus
0.86	Help identify critical elements for success	0.86	Limited – only give snapshot of now
0.92		0.92	
C2	When tools allow us to think in different perspectives	C2	When tools have no guidance on good thinking
0.96	Look at different angles	0.96	They have less dimensions and coverage
0.95	They give factors we are not strong in	0.95	Too generic and can't focus on problems
0.90	Provide systematic analysis	0.90	Not systematic
0.88	Divide areas and give clear picture	0.88	No clear picture on different areas
0.88	Broad comprehensive view	0.88	Can't see clearly around me
0.86	Know ourselves better	0.86	Can't help think about company value
0.91		0.91	
C14	When tools divide areas and give clear picture	C14	When tools don't provide clear picture on different areas
0.93	Help focus on critical factors	0.93	Too broad – not clear what to focus
0.93	Help us look at different angles	0.93	Less dimensions and coverage
0.89	Provide broad comprehensive view	0.89	Can't see clearly around me
0.88	All us to think in different perspectives	0.88	No guidance on good thinking
0.87	Systematic analysis	0.87	Not systematic
0.86	Allow us to know ourselves better	0.86	Can't help think about company value
0.89		0.89	
C3	When tools give us broad comprehensive view	C3	When tools don't help me see clearly around me
0.95	Help identify critical elements for success	0.95	They are limited and only give snapshot of now
0.92	Look at different angels	0.92	They have less dimensions and coverage
0.89	Give factors not strong in	0.89	Too generic – can't focus on the problem
0.89	Divide areas and give clear picture	0.89	Provide no clear picture on different areas
0.87	Generate conclusion and next step	0.87	Difficult to reach conclusion
0.85	Easy to use and communicate	0.85	Not easy and complicated
0.85	Help generate new ideas	0.85	No direction for me to think new and practical
0.85	Help focus on critical factors	0.85	Too broad – not clear what to focus
0.88		0.88	

Notes: ^a We developed this table based on Construct Correlation generated from the present study. Two separate correlation tables were generated based on the Construct Poles and the Contrast Poles of our sample group's elicited bi-polar constructs. This table represents the most important correlations ($|r| \geq 0.85$) in the present study. Please refer to Table III for full description of these constructs.

^b Key Construct Poles that correlated highly with other Construct Poles are highlighted in bold font. The average correlation for each construct cluster is shown in bold underline.

Construct C3 correlated with the highest number of constructs in the present study. When tools give us a comprehensive view (C3), they help identify critical elements for success; we look at different angles, determine factors in which we are not strong, are able to divide areas, and get a clearer picture that allows us to generate a conclusion and identify the next step. This allows us to communicate easily with others, because the tools help us to generate new ideas and focus on critical factors. With the highest cluster correlation (C16) when tools give us factors in which we are not strong, they allow us to look at issues from different angles; this makes us think from different perspectives, which in turn allows us to divide areas in order to present a clearer picture, which allows us to know ourselves better. All this is achieved through systematic analysis and a broad comprehensive view of our problems. Similarly, constructs C2 (when tools allow us to think in different perspectives), C14 (when tools divide areas and give a clear picture), and C7 (when tools help us to look at different angles) all correlated with a large number of other elicited constructs.

Beyond this table, our interview transcripts showed that tool users also went beyond the tools *per se* to look at tools-in-action as made up of multiple-tools-in-use that helped them take their thinking to a higher level (Rigby and Bilodeau, 2011). One participant (an associate director) said:

Sometimes a simple tool standing alone is not useful. But several tools standing together could be very powerful; it is about the synergy. Very often, findings from a single tool are limited, and so too are the implications that are generated. However, if we can analyse findings from several tools at the same time, our thinking changes as we piece together findings from one tool to another . . . we can make the connections between the tools to get new insights.

Another user (a project manager) provided a compelling example of her experience using tools in her action learning:

At first we found it frustrating that some of these tools within a certain group for a specific part of the strategy making process were very similar in what they were analysing. But as we looked more carefully at the results of our analyses, we found that each tool within this group provided a slightly different take on the analysis which made all the difference in bringing new insights. We found this to be analogous to a body builder exercising his bicep curls using a straight barbell, and then switches to do the same curl exercise, but using a ‘w-shaped’ barbell to develop the bicep muscles from a different angle. The slight change in angle to the same biceps exercise produced significant results! This made us realize the importance of doing our strategic analysis from different perspectives to analyse the same issue.

Taken together, these key finding indicate the importance of providing tool users with the power to think in different perspectives (see Clark, 1997; Jarratt and Stiles, 2010).

In taking our analysis further, we regenerated the construct correlations table to show the contrast poles (the negative side of the bi-polar constructs) of the collective constructs

(see the right-hand side of Table IV). Studying these poles provides another level of insight into how tool users 'make sense' when strategic tools *do not help* them to perform better analysis and reach a better decision. We feel this analysis is just as important as examining which tools users preferred to help them make better decisions. Managers found that when tools did not provide clear visibility around the user (C3), were too generic (C16), did not provide guidance on clear thinking (C2), gave no clear picture on different areas (C14), and provide fewer dimensions and less coverage (C7), strategic analysis was not carried out well. As a result of these frustrations with bad tools, users took the initiative to do something about them (Jarzabkowski and Wilson, 2006; Lozeau et al., 2002). As one general manager said:

What we should care about is not the prescribed use of the tool but the idea behind the tool. We should not use strategic tools rigidly according to their prescribed usage; as long as it can add value to our analysis, we could modify the tool to cater for our specific needs for analysis.

Yet another manager (a managing director) said:

Since some tools were developed a long time ago, they may not be as useful as other tools today. And some tools may not be applicable to some new emerging industries. But these tools still have their value. We can base on the old model to modify it and make it more useful for our analysis. The rough work in the past can let us know how to build the future . . .

In view of these insights, managers made efforts to reconstruct their learning around such tools because they saw the need to modify them in practice to better reflect how they saw the environment being analysed (see Rigby and Bilodeau, 2011). As one director pointed out:

As the world is ever changing, some factors which should be included however are not included in the tools so we need to update them if they are going to be useful when we apply them in our strategic report. The original frameworks look good, but need updating. For example, the McKinsey 7S Model is neat and tidy; but it's a little over-simplistic, as we discovered when we applied it to our company. We found that not all the Ss were of equal importance or of equal distance from each other when we talked about the degree of alignment. We also thought about adding more 'S' to better represent what was important for the company. Our group argued about the size of the circles in the model. Which ones should be drawn larger and which ones smaller as the implementation unfolded in this company? We also ended up improving the model by rotating the circles in the 7S framework at different phases of the implementation process, with new 'S' added and some old ones relegated.

In summary, analysis of the negative poles of the elicited group construct correlations reveals that tools are not construed as useful when there is no guidance on good thinking

(Calori, 1998; Hill and Westbrook, 1997; Seeger, 2006; Worren et al., 2002). As a result, users have no option but to take action (as reflected in our quotations) and make changes to accommodate the situation encountered (Barney and Clifford, 2010; Chesley and Wenger, 1999; Hodgkinson and Wright, 2002; Jarzabkowski and Spee, 2009; Lozeau et al., 2002).

This section helped us answer our first research question: In the process of engaging with strategic tools during action learning, what bi-polar constructs do managers use in making judgment calls about a tool's usefulness when undertaking strategic analysis? We now turn to our remaining research questions.

Mapping Managers' Collective Knowledge Structures of Strategic Tools Usefulness

What underlying values drive managers' thinking in the course of using strategic tools when performing strategic analysis? The data from this research provide evidence of what is going on deep in the mindset of tool users engaged in action learning with tools, especially when the focus is on helping them perform better analysis.

Reference back to Table III shows construct loadings based on managers' completed grids at the collective level. These loadings, which help determine the *x*- and *y*-axes of a cognitive map, identify the underlying explanatory dimensions that drive tool users' thinking when engaged in strategic analysis. According to our results, these managers were more concerned with tools that helped them 'divide all areas and give a clear picture vs. do not have clear picture on different issues'. At the same time, they also looked for tools that 'help come up with new ideas vs. do not stimulate me because there is no direction for me to think in new and practical ways'. Together, these two core perceptual dimensions captured 83 per cent of the total variance.

Based on these underlying explanatory dimensions, we are able to plot (using the RepGrid program) the 13 strategic tools (12 + a preferred tool) along with the 19 emerging bi-polar constructs, spread in psychological space (see Figure 2a). We can now identify the reasons why certain tools are more or less useful by referring to the construct lines pointing in the direction of each element. For example, the VRIO Framework (E2) and BCG Model (E7) to the right of the map are not perceived as useful because they are too generic/cannot help users focus on the problem, do not provide a clear picture of different areas, do not guide users to form good thinking path, do not help users think about the company's value, and are considered too broad. Moreover, of particular interest is how the 12 strategic tools (based on actual application for business and competitive analysis) are seen using the underlying core perceptual dimensions (the *x*- and *y*-axes; please see Figure 2b, without the 19 construct lines). Towards the right-hand side of the *x*-axis, where tools are perceived not to provide a clear picture of different areas, managers experienced the following tools as being less useful: Bowman's Strategy Clock (E10), VRIO framework (E2), BCG model (E7), Porter's Generic Strategies (E13), Value Chain (E9), Strategic Group Maps (E12), and McKinsey 7S (E4). Relative to the location of E6 (the type of strategic tool users prefer) these seven tools were perceived to be not as useful as SWOT (E11), Porter's Five Forces Model (E1), Blue Ocean Four Action Framework (E8), Balanced Scorecard (E5), and SFAS (E3). These

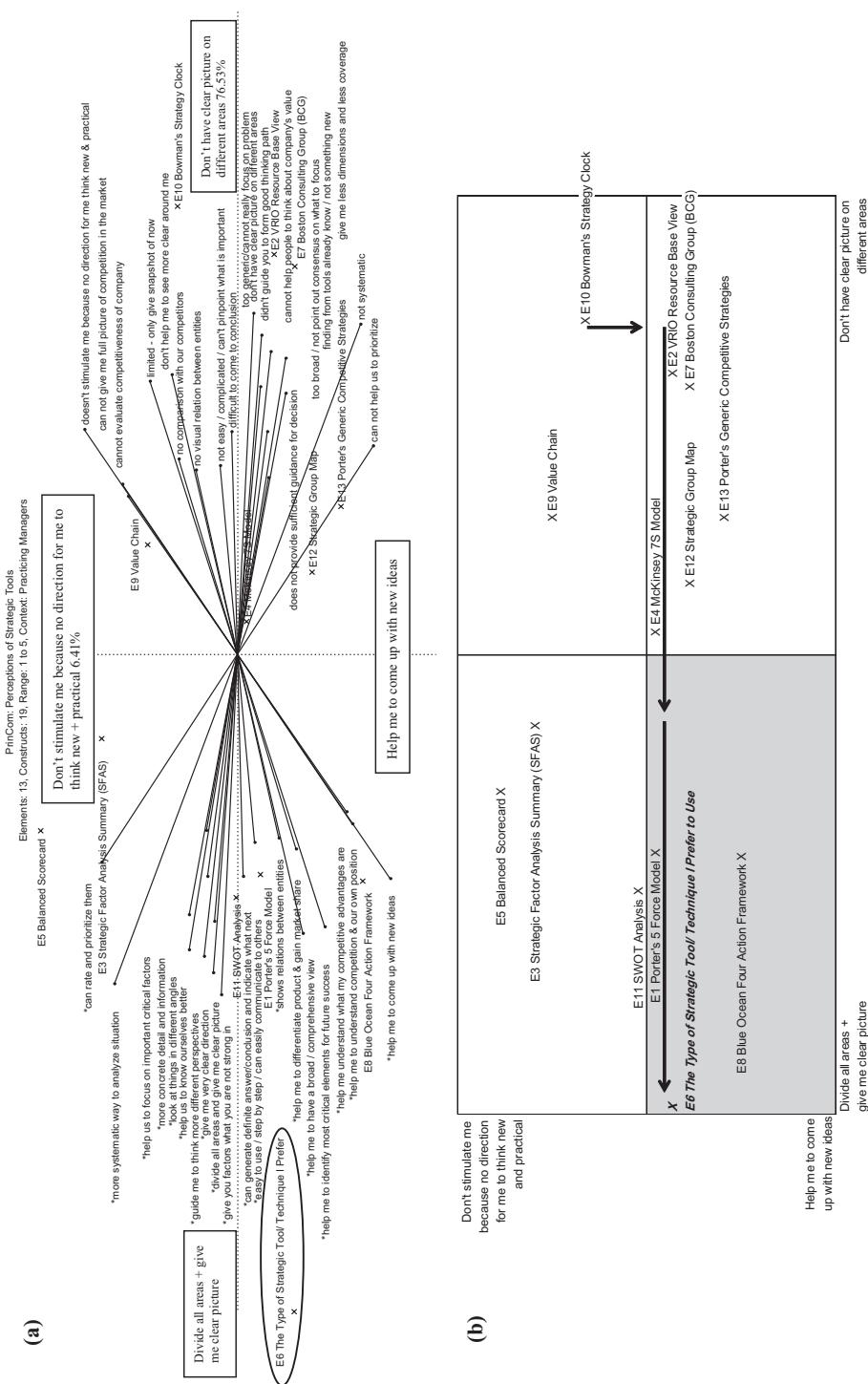


Figure 2. Improving strategic tools usefulness based on managers' embedded knowledge structures through action learning

tools are situated more towards the left-hand side of the *x*-axis and are described as tools that help divide all areas and give users a clearer picture. On the other hand, in terms of the core perceptual dimension along the *y*-axis, tools towards the top end of the axis (where tools did not stimulate and provided no direction to think in new and practical ways) were relatively less useful than those located towards the lower end of the axis (where tools help users to come up with new ideas).

Going beyond these findings, this collective map can be used as a decision-making tool in and of itself (Fiol and Huff, 1992; Tsoukas, 1989; Wright, 2006). Specifically, in relation to the location of E6, any one of the tools can be improved through better design and utilization based on the dimensions of the *x*- and *y*-axes, so that they can (at least psychologically) be positioned near the location of E6 on the map. For example, if element E10 (Bowman's Strategy Clock) is to become more useful in the eyes of this group of managers, this tool needs to provide more utility in helping managers come up with new ideas (the *y*-axis), and, at the same time, guide managers by dividing all areas and providing a clearer picture of the analysis to help these users make better decisions. The same logic can be used to understand how the other strategic tools can be improved.

Towards a Theory of Strategic Tools Usefulness

Following the different phases in our data analysis as outlined in Table I, we are now better able to develop a more overarching conceptual model of managers' internal logic when undertaking strategic analysis through strategic tools. Figure 3 presents the framework that best captures all our key findings from the present study. Taken together, we find that when tools do not help users evaluate the competitiveness of a company (Box A), provide less coverage of different areas/make it difficult to see around me (Box B), are difficult to use and don't help users come to a conclusion (Box C), and do not provide a clear picture of different areas (Box E), strategic tools do not provide peripheral vision (see Cunha and Chia, 2007; Regner, 2003; Schatzki, 2005). Similarly, when tools are difficult to use and offer no help in reaching a conclusion (Box C), do not provide sufficient guidance for decision-making (Box D), do not provide any direction to think in new and practical ways (Box F), and provide no guidance for good thinking (Box G), tools are detrimental to guiding the thinking process (Calori, 1998; Worren et al., 2002). On the other hand, when tools help users analyse information from different angles and show the interconnectivity between entities (Box 2), help users identify critical success factors (Box 4), help users divide all areas to provide a clearer picture (Box 5), stimulate users to create new ideas (Box 6), and help users to think from different perspectives (Box 7), strategic tools help provide multiple perspectives for business and competitive analysis (see Bartunek et al., 1983; Martin, 2007b). Furthermore, managers' internal logic showed that when tools help users understand competitive advantage against competitors (Box 1), reach a conclusion and easily communicate the findings to others (Box 3), identify critical success factors (Box 4), and generate new ideas (Box 6), they provide a powerful means to guide the thinking process (see Clark, 1997; Grant, 2008; Jarzabkowski and Wilson, 2006; Pelz, 1978).

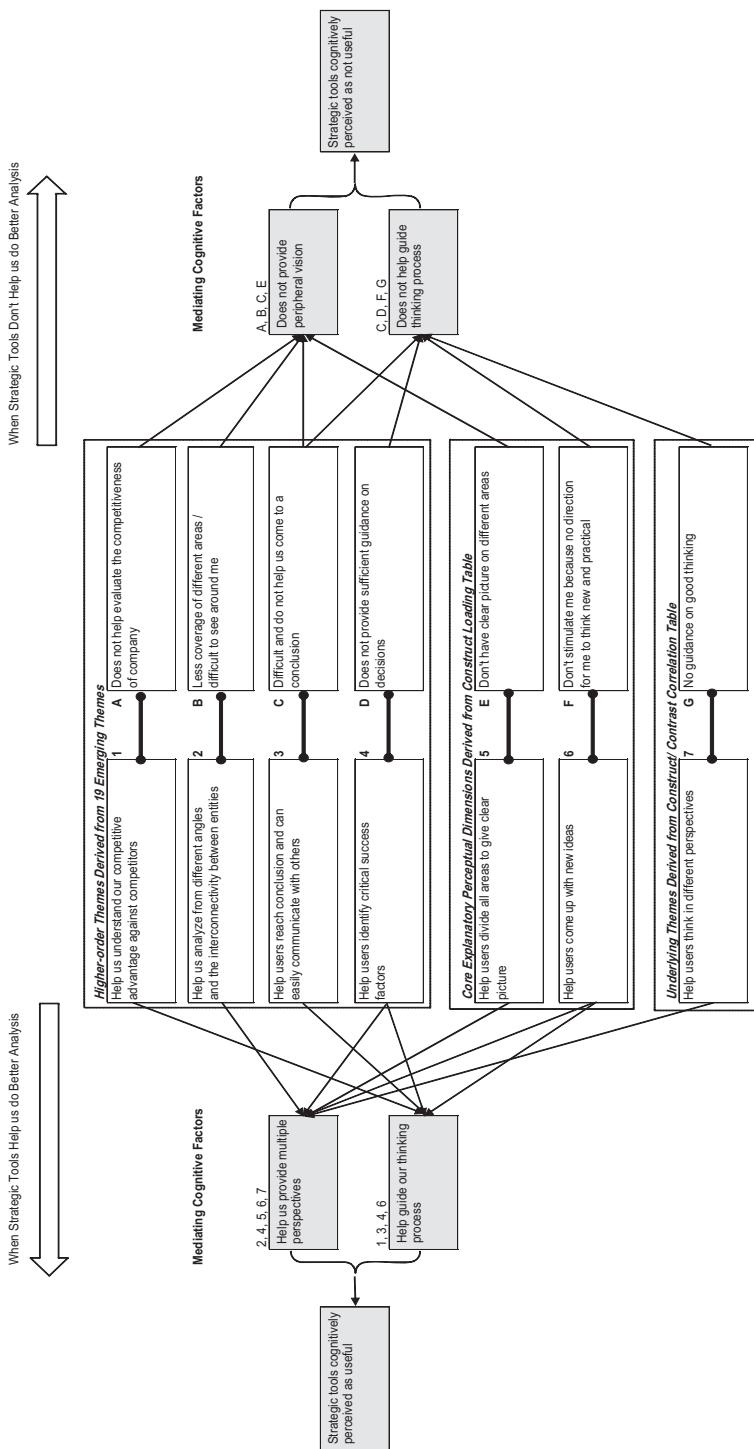


Figure 3. Conceptual framework of strategic tools usefulness based on the internal logic of managers prior to the manifestation of practice

DISCUSSION AND CONCLUSION

We position our study in the midst of the heated debate about the relevancy of our knowledge production (Bartunek, 2007; Bennis and O'Toole, 2005; Ghoshal, 2005; Rynes, 2007a, 2007b; Walsh et al., 2007; Weick, 2007b) and boldly ask: how useful are the strategic tools we teach in business schools in actually helping managers to make better decisions?

We believe the present study's design – situated in a business school context, where we tap into practicing managers' internal logic of strategic tools usefulness through action learning, real-world projects – makes a modest contribution to the practice literature. We acknowledge that this is a departure from the practice tradition, away from concrete actions and organizations, but believe it has the power to provide an indirect complementary understanding of managers' thinking prior to the manifestation of practice. This is important because business school strategy capstone courses are a ripe breeding ground for the *dissemination* of such tools and techniques of the trade to managers. However, we do not really know what it is about these tools and techniques that managers find useful in some cases but not useful in others in terms of their utility to aid decision making. In this respect, business schools also provide great *testing grounds*, with practicing managers who are themselves caught up in a complicated world, to see if our theories, models, and tools really do live up to their experiences and expectations about what works and what does not. Once we can reveal what managers are thinking about the usefulness of these tools and techniques (in the context of their own lived experiences, which they bring to their learning; Greiner et al., 2003) we can better understand their preferences and hence begin the journey for the *co-production of knowledge* in the design of better tools for today and tomorrow (Christensen and Carlile, 2009; Loyd et al., 2005; Tushman and O'Reilly, 2007; Tushman et al., 2007).

In this respect, we began our paper highlighting the need to go beyond the visible and observable layers of practice to really understand the internal logic of practitioners (Chia and Holt, 2006; Chia and MacKay, 2007; Rasche and Chia, 2009; Sandberg and Tsoukas, 2011) and set up some theoretical expectations to see whether our business school context, incorporating action learning, could in some way reflect the cognitions that drive behavioural manifestation of practice. Because the world of practice is complicated, we would expect managers to prefer complicated tools – quite the opposite of what the current literature advocates (i.e. the use of simple tools to help simplify reality; Grant, 2003; Jarzabkowski, 2004; Jarzabkowski and Wilson, 2006). Moreover, we would expect tool users to look for tools that help them think in complicated ways, tools that go beyond simply framing our thinking, to stimulating interconnections between different information, and then to helping untangle complex bundles of issues. The answers to our research questions provide some compelling overlap between these expectations and our findings.

By capturing the internal construct systems of practicing managers through action learning in a psychometrically robust way (Hodgkinson and Clarke, 2007), our findings show that managers do in fact look for tools that provide multiple perspectives, help users to come up with new ideas and perform analysis from different angles, show interconnectivity between entities, divide areas to give a clearer picture, and guide the thinking

process in ways that foster complex and connected thinking. All of these results can be found on the left side of Figure 3. Beyond these expectations, our study also shows that tool users looked for strategic tools that not only could be used to communicate easily with other users but also helped users reach a conclusion. We also found that tools which helped users identify critical success factors and those which helped users understand their competitive advantage against competitors were perceived as useful.

Moreover, the application of Personal Construct Theory to our analysis led to a manifestation of the complex interconnected dualities embedded in managers' own internal construct systems. As shown at every stage of our conceptualization of managers' internal logic of strategic tools usefulness, we developed a deeper understanding of their construct (preferred) and contrast (not preferred) poles when carrying out business and competitive analysis. Hence, we were able to identify not only why strategic tools were construed to be useful, but also the reasons why managers rated them as less useful based on their own theories-in-use. These findings are important because they reveal to us not only *what* constructs are used, but also *how* they are used as managers make sense of strategic tools usefulness (Burr and Butt, 1992; Kelly, 1955). Furthermore, our findings contribute towards a more coherent and reliable understanding about how different ways of thinking about the tools can eventually lead to different patterns in the internalization and use of tools by managers.

Taken together and summarized in our conceptual framework in Figure 3, our findings offer a novel alternative approach to understanding practice through action learning prior to the manifestation of practice. By having a deeper understanding of tools as knowledge artefacts and the cognitive dimensions they impose on users, we can better design strategic tools for actual practice. In this regard, we hope our framework will provide opportunity for reflection by researchers, practitioners, and designers on the usefulness of our tools.

Implications for Research and Theory Building

While our findings are promising in a business school context (prior to the manifestation of practice), we encourage further research that follows these specific tools into practice to see how managers' thinking about the usefulness of strategic tools is validated/invalidated in actual organizational settings and between different groups of managers. Longitudinal research designs triangulated with observations, surveys, and psychological methods may provide a fuller picture of the usefulness of our frameworks and the opportunity to iterate back and forth between the worlds of academia and practice. Moreover, given our increasingly complicated world, we believe tools that help 'differentiate' ideas whilst simultaneously 'integrating' them to generate new insights will be perceived as more useful (see Bartunek et al., 1983; Martin, 2007b; Tsoukas and Hatch, 2001). On the other hand, at the individual level, Hodgkinson and Clarke's (2007) insightful look at strategists' own inclination towards information processing (analytical and/or intuitive) may provide deeper insights into why certain tools are preferred over others. This may even lead to further investigations into the relationships between the cognitive complexity of individuals and their preference for more complex or simpler tool designs that require different degrees of cognitive input.

In terms of the theoretical grounding of the present study and the calls for more constructivist work in the strategy practice arena, we employed Kelly's (1955) theory of personal constructs with its accompanying repertory grid methodology to guide our investigation into one important (and not yet researched) aspect of strategic tools – how people think about the tools they use. We believe this is a complementary departure from the perspective of mainstream practice research, which has emphasized the roles of tools as boundary objects and socio-political instruments (see Jarzabkowski and Spee, 2009).

More broadly, even though the present study's approach departs from the practice tradition, we believe it has much to contribute to practice scholars. We found that much of Kelly's work centred around the psychological processes of anticipating the replication of events through lived experiences and that construing was embedded in action, with its relationality of being, aligned very well with the spirit and intent of practice theorists and, more specifically, with the main arguments put forward by the seminal discussions of Sandberg and Tsoukas (2011), Chia (2004), Chia and Rasche (2010), Hodgkinson and Clarke (2007), and Tsoukas and Chia (2011). Kelly (1955) also talked about lived experiences as mostly unreflective and non-deliberate (even though he stated that the person's actions are always intentional). Similar to practice theorists, Kelly denounced Cartesian dualism and pragmatically signalled the importance of understanding *dualities* through a person's bi-polar constructs and their interconnections. The fact that Kelly elaborated his theory through an understanding of his Corollaries – all of which focus on the importance of construing and construct systems of the ways in which we make sense of the world – is significant because they provide impetus to a more fine-grained understanding and explanation of the internal logic as it is validated and revalidated by the person in a socially constructed world.

Through this theoretical lens, our study also identified the paradoxical dualities (not dualisms) managers use prior to dealing with the actual manifestation of strategic practice. Such an approach can extend to the growing body of research looking at the psychology of strategy (Hodgkinson and Healey, 2011), ambidexterity (Simsek, 2009), sociomateriality (Orlikowski and Scott, 2008), and organizational paradoxes (Cameron and Quinn, 1988; Chen, 2008; Lewis, 2000; Poole and Van de Ven, 1989; Smith and Lewis, 2011).

Kelly, in fact, invented the repertory grid as a way of operationalizing his theory of personal constructs to capture this internal logic of being-in-the-world (albeit through real-world action learning projects). This being the case, the results of our construct elicitation with our 46 managers and the subsequent data are a direct explanation of how his theory works and of its power to capture people's internal construct systems of how the lived world appears to the actor.

Balogun et al. (2003) and Huff et al. (2010) provided us with seminal discussions about the methodological challenges facing strategy practice researchers and called for more innovative and creative methodologies to better understand strategy, strategizing, and strategic management. We hope the present study's innovative use of the grid methodology (grounded in the theory of personal constructs) and its novel analysis of our dataset will provide researchers of practice with an approach that is complementary to their methodological toolkit. We believe such a methodological approach can open up newfound applications for other areas of strategy and beyond when

building theory about the practical rationality of different types, forms, and systems of practice.

Limitations to the Study

In view of these contributions, we recognize that this study has limitations that need to be accounted for in light of our research design. One may challenge our study on grounds of bias in terms of the limited selection of strategic tools used, and question why we did not include more tools for investigation. While this is a valid concern, we were more interested in studying (through action learning projects) the most common tools taught in business schools, as evidenced in mainstream strategy textbooks and shared course outlines. Moreover, the 13 tools on which we focused already presented a large number of elements upon which to carry out construct elicitation based on business applications of the grid technique (see Stewart and Stewart, 1981).

We also acknowledge the existence of some degree of bias in the selection of our (convenient) sample of managers enrolled in capstone strategy courses taught and assessed by the lead author. Nevertheless, we feel that tapping into our own students' learning and getting them to think about their own thinking is an important part of the developmental process in nurturing more reflective strategy practitioners (Christensen and Carlile, 2009; Loyd et al., 2005). However, from an observer's perspective, our results may seem biased towards more favourable comments on the strategic tools taught in the course, because the teacher was also the researcher. Needless to say, as engaged scholars and in the true spirit of Personal Construct Theory, we asked all participating managers to 'tell it as it is', based on their lived experience, in terms of what they thought about their use of the tools (Kelly, 1955; Walsh, 1995). They were specifically informed that we were not looking for 'right' or 'wrong' answers, but were more interested in their experience *per se*, whether or not the tools in question helped them perform better analysis for better decision-making. All participants gained equal credit for sharing their experience, whether they described good or bad experiences with the tools. Hence, we are confident that given the structured learning approach of our design, there was no indication of rater bias on the part of the managers. In fact, as our results clearly demonstrated, there was clear evidence of the reasons why some tools did not help and why others were perceived to be more useful.

Moreover, tools are not the only means for better decision-making; other variables are also at play. These variables could include the composition of the decision-making team, the context in which decisions are made, the risk inclination of decision-makers, the time period available for decision making, the access to information, when such information is solicited, and the skill and competence of the tool user, *inter alia*, all of which are important issues to be considered. These are outside the bounds of our present study.

Finally, the concept of 'usefulness' may also appear problematic in most research, as it is all a matter of perspective. What is considered useful today may not be seen as useful tomorrow, as Rigby and Bilodeau's (2011) findings show. Hence, the definition of 'usefulness' is a moving target. Nevertheless, it is perhaps to the study's advantage that we were able to capture how tool users define and make sense of strategic tools usefulness

today, as this opens up the potential for further research to see how internal logics changes over time.

Implications for Management Practice

Our findings provide important insights for the training of effective strategy practitioners (Liedtka, 1998), beyond the issue of simply designing better tools to help in business and competitive analysis. Our findings point to critical managerial competencies needed for the world of practice. Specifically, we need to develop capabilities for paradoxical thinking, peripheral vision, connected thinking, learning to see things from different perspectives, and the skill to differentiate and integrate complex interconnected issues for clearer thinking. The key will be for organizations to provide examples of what these new ways of thinking may look like and how to nurture them through deliberate practice, multi-disciplinary teams, and encouraging managers to look around them (and backwards and forwards in time) as well as outside of their fields for ideas to (e)merge.

Implication for Management Education

We believe our study has wider implications for management education beyond just the question of practice. Our findings also provide a psychological mirror for all scholars, where we see our own material evaluated by those who will put those lessons into practice. Specifically, let us think about how our students think about the tools and theories we teach them; not just whether they are useful, but how and why? This also has the power to help managers/practitioners-in-the-making differentiate good models from bad ones. This information should help teachers reflect on how we teach these theories and how to connect them to practice. It is our hope that fellow scholar-teachers co-reflect more deeply with their students about the theories, models, and research we share with them and contemplate the utility of our own theories (Christensen and Carlile, 2009; Gulati, 2007; Loyd et al., 2005). This will further enhance the ‘double-loop’ learning that Argyris (1976) described as resembling the type of Socratic debate that is so important for nurturing learning and development (for both the student and the teacher, and for the tools and theories we sometimes refuse to drop) (Weick, 2007b).

The following implications for management education are clear from our findings: managers need peripheral vision; they are constantly thinking in dualities (often paradoxically); there is a need to look at issues from different angles; it is important to differentiate and then integrate complex bundles of issues; multiple understandings are required to see all the issues; and the guidance provided by strategic tools is needed to provide a clear thinking process. All these key findings, according to our practicing managers, make strategic tools useful by helping them to perform better analysis and hence make better decisions. If this is the case, we may need to spend more time cultivating these mindsets in our learning environments and pay more attention to how we teach these tools to managers and how all of this connects to dealing with their challenges (Christensen and Raynor, 2003; Lewis and Dehler, 2000; Markides, 2007).

Teaching about tools this way may make learning more portable to the world outside the classroom, where the real test is how much of what we teach really has an impact on improving management practice (Rousseau, 2012).

If anything, we encourage more testing of our own theoretical knowledge and knowledge artefacts in this context so that they can be better refined (in a way that is congruent with the logic of practice) before they are deployed beyond the boundaries of the business school context. Taking such an approach has the potential to build stronger, more engaged theories with prescience (Corley and Gioia, 2011) of a world that is itself found and made, discovered and invented (Butt, 2004; Kelly, 1955).

We believe our choice of the business school context as a research site to investigate the important practice of strategic tool analysis (before the tools are applied in more complicated settings where issues of symbolic, legitimate, and political manipulations take centre stage) provides an important alternative approach to understanding managers' internal logic. By disengaging from the messiness of organizational life, we were better able to capture the essence of what tool users look for (and the cognitive impact these tools had in reflections-on-action) in making judgments about the usefulness of strategic tools. We believe this has the potential to break new ground for the investigation of other important aspects of strategy, strategizing, and strategic management, especially through structured action learning using real-world projects such as the ones designed in our capstone strategy courses.

If one of the key goals of business schools (or education in general, for that matter) is to better qualify our students for the real world, then are we equipping this next generation with the needed knowledge, skills, and mindset? Do we really have an intimate understanding of the challenges that keep managers awake at night, of the burning issues of our time, and of the challenges they will face tomorrow (Pearce, 2004; Rynes, 2007a, 2007b; Tushman and O'Reilly, 2007)? How can we evolve our teaching and learning to better equip our students for a complicated world? (After all, we have a responsibility to do so!) Is what we do in the classroom helping managers to make better decisions? Persistently finding new ways to answer these questions will surely make us better scholars (Rousseau, 2012).

Concluding Note

In conclusion, we feel that we have made improvements to our endeavours as engaged scholars (Van de Ven, 2007), because the feedback we received from all of our interviewed managers revealed that the process of getting them to 'use' the tools and compelling them to reflect on the usefulness of those tools really made them ponder why certain tools helped them make better decisions while others did not (Grant, 2008; Roglio and Light, 2009; Schon, 1983). The opportunity for them to learn beyond the theories and better understand the usefulness of these theories through action-learning-based projects certainly went a long way in helping us bridge the much talked about theory-practice gap. We believe we have moved a little closer to making our research matter more (Hambrick, 1994; Rousseau, 2012; Sandberg, 2005; Weick, 2007a).

As business schools continue to realize the importance of migrating our craft from a heavy reliance on theory and analysis, based solely on the canons of scientific rigour, towards a deeper understanding of the logic of practice through knowledge by exemplification, actionable knowledge, reflexive critique, and openness to additional complementary forms of reasoning (Antonacopoulou, 2010; Chia and Holt, 2008; Ghoshal, 2006; Greiner et al., 2003; Jarzabkowski and Whittington, 2008b; Rousseau, 2012; Walsh, 2011), we see great promise in more engaged and inspiring teaching and learning coupled with scholarship that has the power to make this world a better place.

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