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Interesting Theories of Innovation: the Practical use of the Particular

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Abstract

Innovation theory has by many authors been found lacking in cumulativeness and consistency. In this paper it is argued that this is due to an over reliance on abstract concepts to the detriment of a better appreciation of practice. As concepts and nomothetic epistemology fail to capture essential aspects of innovation practice an alternative is introduced, which instead embraces the particularities and marginal practices of innovation practice. By focusing on aspects of reality which traditionally have been abstracted away, new and interesting avenues for theorizing are opened up.

Keywords: Innovation, innovation concept, methodology criticism, theory, practice

Introduction

The study of innovation has a long history in organization studies and management research. Still the literature is not very uniform in its descriptions and explanations of innovation. Precise and diverse concepts such as newness (Johannessen et al., 2001), adoption (Knight, 1967) and use (Kanter, 1983) are frequently used to represent and define innovation. While any one concept is likely to neglect vital parts, diversity in descriptions may well be a proper way of describing the phenomenon of innovation as it is manifest in practice.

Still, in attempts to build theory and generalize about innovation, stable operationalizations of both innovation and innovation determinants are considered important. Typically attempts have been made to single out and empirically test different determinants, moderators and contingencies of innovation such as formalization, slack resources and external communication. The rationale of these attempts is succinctly captured in the following quote by Downs and Mohr (1979: 391): "a good theory should enable accurate prediction and control over events". In the tension between precise definitions and actual practice the growing literature on innovation has however met with problems, especially with regard to stable results and the accumulation of knowledge (e.g. Downs and Mohr 1976; Wolfe 1994). A range of writers have concluded that results are either weak or contradictory (e.g. Fiol 1996, Soutaris 1999).

The problems incurred when trying to develop stable findings using nomothetic, large-N methodologies begs the questions why this is so and what alternative research approaches are available. It is argued that the answers to these two questions are closely related.

The answer to the first question points to the failure of abstract concepts to capture the detailed workings of reality as it unfolds. Since no concept can ever fully account for all aspects of a complex and people-dependent phenomenon like innovation, the concepts included in nomothetic studies are designed to be on a level of abstraction where accumulation of results and generalizations are possible. If this strategy fails the level of abstraction is typically either raised as suggested by Downs and Mohr (1979) or by revising concepts or introducing contingencies as suggested by Damanpour (1991). The result is an approach where parts of reality, particularly rare and deviant aspects, must always be ignored.

To address the second question those aspects which have traditionally been abstracted away are instead brought to the fore. Instead of seeking similarities between large numbers of cases, an ideographic approach is proposed which focuses on exactly those aspects of innovation that traditional research tends to ignore. By closely observing the particulars of interesting exemplars researchers will be able to gain a nuanced understanding of particular cases of innovation. The insights gathered from such investigations can then serve as the basis for rich and informative case stories and serve as the basis for interesting theorizing. As opposed to nomothetic research the purpose here is not to develop universal laws but rather to identify and theorize interesting perspectives.

The structure of the paper follows the main argument as laid out above. Next comes a brief review of how differently innovation has been conceptualized in management studies followed by a list of the most commonly used innovation determinants and contingencies. After that the conflict between abstract concepts and the richness of practice is discussed. To further illustrate the dilemma of combining context-independent concepts with the context-dependence of reality, a worked example of two innovation organizations is presented. Using a form of structured group interviews it illustrates how

some of the concepts typically used in traditional studies of innovation take on different meanings and fulfil different functions in the two organizations. Finally an alternative ideographic research agenda is outlined including methodological guidelines, implications for theory and relevance for practice.

The Problematic Concept of Innovation

The greater innovation discourse has traditionally been diverse and even on the organizational level fields such as entrepreneurship and product development have formulated more or less distinctive programs including terminologies, methods of investigation and fora for dissemination. As a result a number of different conceptualizations and definitions of innovation exist. So while the experience of innovation may be intuitively easy to comprehend by specific actors, innovation in itself has proven harder to pin down as it borders on a wide range of phenomena and concepts. As an illustration of this diversity a brief review of the more common conceptualizations of innovation is presented.

Change - Newness
In many definitions innovation is related to change e.g.: "Innovation can be operationally defined as any departure from the traditional practices of an organization" (Levine 1980: 3) or: innovation is "a fundamental change in a significant number of tasks" (Wilson, 1966: 196). The use of change as a criterion for innovation has however met some criticism: "innovation requires change but change is not necessarily innovative" (Jones, 1978: 589).

Instead many authors have found the concept of newness to be more useful in describing innovation. Some talk of absolute newness but most define innovation in terms of newness as perceived by the relevant innovator or group of innovators. Zaltman et al. (1973: 10) view innovation as "any idea, practice, or material artifact perceived to be new by the relevant unit of adoption" and Johannessen et al. used factor analysis to single out "the 'common denominator' of innovation: newness" (2001:27). In a similar vein Damanpour and Evan (1984: 393) define organizational innovation as "the implementation of an internally generated or a borrowed idea - whether pertaining to a product, device, system, process, policy, program, or service - that was new to the organization at the time of adoption".

Adoption – Use
Partly due to the above mentioned focus on newness and especially newness to the adopting unit, a great many authors equate innovation with the adoption of new innovations. Downs and Mohr (1976: 701) for instance define innovation as "adoption of means or ends that are new to the adopting unit". The conceptual difference between innovation and adoption and the problems produced by confusing the two, has been discussed by a number of authors such as Schoonhoven et. al who state that: "although innovation has been widely studied in the past fifteen years … much of the research is about innovation adoption and diffusion" (Schoonhoven et. al, 1990: 179). Ravichandran (1999: 256) agrees stating that while "most studies on innovation … appear to focus on innovation, in content they pertain to adoptions only".

Related to the adoption oriented definitions of innovation are definitions that emphasize use: "research departments in many business organizations create or invent

things that may lie unused for a long time. Later the inventing organization, or an entirely different one, may make the first use of this thing. That first user, we believe, should properly be considered the innovator" (Becker and Whisler, 1967: 463). A related notion of use is suggested by Kanter who defines innovation as: "the process of bringing any new problem solving idea into use" (1983: p.20). Here use is interpreted as almost analogous to adoption. Myers and Marquis' definition of innovation includes a more practical measure of use: "[innovation] proceeds from the conception of a new idea to a solution of the problem and then to the actual utilisation a new item of economic or social value." (1969: 1).

Outcome - Process
Use can be seen as more concrete than change, adoption and newness. There are however researchers who focus on even more tangible factors such as products, patents or commercial success. Whipp and Clark (1986: 1) concentrate on products in defining innovation as: "the ability of an enterprise to envisage and deliberately create a new product (including its components) which may involve, by intention or indirectly, changes in the production process and the form of work organization". Bacon and Butler (1998: 11) make a clear distinction between invention and innovation emphasizing commercial outcome as defining of innovation: "invention is the solution to a problem. … An innovation is the commercially successful use of the solution", a statement echoed by Freeman (1982: 7): "an innovation in the economic sense is accomplished only with the first commercial transaction". Often economists and policy makers use patents or patent applications as a proxy for innovation thereby focusing solely on discrete outcomes (Acs et al. 2002).

Another stream focuses on the process(es) by which innovations are generated. Paul Nightingale (1998) in his cognitive model of innovation plays down the outcomes and instead emphasizes the process through which innovations are developed seeking: "a theoretical model that explains how the innovation process moves from an initial, ill defined conception of a problem, through a series of sub-problems, to a finished technology" (Nightingale, 1998: 689). Van de Ven et al. (1999: 16) see the innovation process as "a nonlinear cycle of divergent and convergent activities" allowing the process to take precedence over the actual outcomes: "innovation success or failure may be more usefully viewed as 'by-products along the journey' than as 'bottom-line' results" (Van de Ven et al., 1999: 12). Shepard (1967) sees the process of innovation primarily as a learning process, and begins his paper by stating that: "When an organization learns to do something it did not know how to do before, and then to do it in a sustained way, a process of innovation has occurred" (Shepard, 1967: 470).

Individual - Cooperative
Many investigators emphasize the role of the individual and his or her specific qualities in innovation. Kirzner (1979) for example, sees alertness as the essential 'state of mind' which makes entrepreneurship possible. The entrepreneur is thus seen as "a decision-maker whose entire role arises out of his [sic] alertness to hitherto unnoticed opportunities" (Kirzner 1979: 38-39)". The individual is also central in the literature on product champions. Donald Schon (1963) in a study on military innovations concluded that radical innovations need to be promoted vigorously by a champion in order to be successful: "the new idea either finds a champion or dies." (Schon, 1963: 84). The entrepreneurship literature of recent decades is also filled with individualist theories. Most notably these focus on need for achievement, internal locus of control, risk-taking

propensity, problem-solving style and innovativeness, and values (Brockhaus and Horowitz, 1986).

In contrast with the individualistic perspective some view the cooperative element as a defining characteristic of innovation. Van de Ven (1986: 591) describes the innovation process as "development and implementation of new ideas by people who over time engage in transactions with others within an institutional context". Becker and Whisler (1979) go so far as to make the cooperative effort a distinguishing feature between innovation and invention where invention is "the creative act of the individuals" and innovation is "a co-operative group action" (Becker and Whisler, 1967:463).

Innovation determinants

Much of the research on innovation has tended toward a quest for essential characteristics or explanatory points. In actual research practice this has led to a situation where both determinants and operationalizations of innovation have diverged greatly, generating discrepancies both conceptually and methodologically. Wolfe in a review of the organizational innovation literature bewails the lack of consistency regarding the "characteristics of the innovation(s) studied, the stage(s) of the innovation process considered, and the type(s) of organizations" (Wolfe 1994: 424). Similarly Brazeal and Herbert (1999: 31), speaking of the entrepreneurship field, describe the disparity regarding "independent variables that ought to be studied, the ways these variables should be operationalized, the most appropriate approaches for gathering data, and the techniques that should be used to analyze the data".

As a result of this diversity a number of studies have attempted to identify specific innovation determinants (e.g. Damanpour 1991, 1996; Ravichandran 2000; Wolfe 1994). In an impressive meta-review, Damanpour (1991) identified thirteen determinants of innovation: specialization, functional differentiation, professionalism, formalization, centralization, managerial attitude toward change, managerial tenure, technical knowledge resources, administrative intensity, slack resources, external communication, internal communication, and vertical integration. As such determinants still fail to yield consistent findings, researchers have introduced a number of moderating variables in order to tease out the different relationships and establish more stable and cumulative results. Examples of such moderators are *organizational characteristics* such as conservative and entrepreneurial (Miller and Friesen 1982), mechanistic and organic (Burns and Stalker 1961), traditional, mechanical, organic and mixed (Hull and Hage 1982), manufacturing or service oriented (Mills and Marguiles 1980), old or new (Koberg at al. 1996), big or small (Nord and Tucker 1987), prospecting, defending and analyzing strategy (Miles and Snow 1978), and *innovation characteristics* in the form of administrative and technical (Daft 1978), product and process (Utteback and Abernathy 1975), appropriability and level of output (Klepper 1996), incremental or architectural (Tidd 1995), level of complexity (Rogers and Shoemaker 1971). While Damanpour (1991) claims that some determinants of innovation may indeed be stable and cumulative once suitable moderators have been included, the generally poor track record of these research efforts is enough to warrant some reflection[1].

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[1] Doubts have also been raised regarding the way Damanpur conceptualized innovation in his study and the effects this may have had on the validity of the results (Ravishandran 2000).

The problem of concepts and our access to innovation

The review above indicates that innovation is indeed an elusive beast and one which is hard to capture and retain within any concept. In a critical review of innovation terminology Garcia and Calantone (2002: 111) state that: "Because new product researchers have not found consistency in labeling and identifying innovations, we cannot accept practitioners to have learned from our research endeavors". Echoing Osigweh (1989), Wolfe (1994), Brazeal and Herbert (1999), Tidd (1997), Damanpour (1991, 1996) and many others, this statement traces the problem of knowledge accumulation to problems of definition and of consistent and correct operationalization of concepts and moderators like the ones above, with the antidote most often being 'more of the same'; ever more elaborate classifications of innovations, determinants and moderators coupled with more systematic and coordinated analyses. While addressing important problems in the field this approach contains an important limitation. Though useful in their diversity[2] the prevalence and continuous reification of concepts, no matter how consistently labeled or operationalized remain at arms length from innovation practice.

Conceptual abstractions aside, the empirical literature suggests that innovation is a creative and serendipitous activity, practically and institutionally embedded, and subject to a range of internal and external influences. In this situation quantitative studies can be useful in finding out the degree to which some element or phenomenon is present in a given group or how it varies across cases. But at the same time nomothetic research affords quite limited opportunity for revising and falsifying theoretical assumptions, partly because the researcher will never get close enough to the phenomenon under investigation to appreciate its nuances. As a result it becomes difficult to transcend existing concepts and operationalizations.

Concepts and measures are important building blocks in the research process, but when researching innovation it is important to be *aware* of the epistemological limitations of concepts per se. This is especially critical when conducting empirical research. Max Weber realized this stating that: "an ideal type is formed by the one-sided accentuation of one or more points of view and by the synthesis of a great many diffuse, discrete, more or less present and occasionally absent concrete individual phenomena, which are arranged according to those one-sidedly emphasized viewpoints into a unified analytical construct. … In its conceptual purity, this mental construct … cannot be found empirically anywhere in reality" (1949: 90). Used in a sensible way concepts have their obvious role in the process of furthering understanding of innovation. However, the current dominance of quantitative studies in the fields of innovation and entrepreneurship is locking research in on exactly those kinds of constructs which "do not exist anywhere in reality". Many of the nuances and particularities of the specific situation are thereby lost as scientists force a framework of concepts over the intricacies of practice, thus excluding important dimensions of innovation from the resulting theories and implications. In the words of Carol Steiner: "To specialize and simplify in the interest of control, science deals with less than the full complexity of the world." (Steiner 1999: 612).

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[2] The fact that so many concepts are used to describe innovation is good insofar that they taken together help elucidate different aspects and form understanding of innovation. As Nietzsche (1967: 119) says: "There is *only* a perspective seeing, *only* a perspective 'knowing'; and the *more* affects we allow to speak about one thing, the *more* eyes, different eyes, we can use to observe one thing, the more complete will our 'concept' of this thing, our 'objectivity', be" (emphases in original).

To further illustrate the tension between concepts and innovation practice, a brief example is presented. Here two innovation organizations are investigated whereby concepts such as product and external and internal communication are shown to be infused with different meanings and have quite different roles for innovation activities.

A study of organizational innovation

Two studies were conducted at different innovation departments in two large firms. The studies consisted of structured focus group exercises drawing on that method's capacity to focus on specific issues while drawing both on individual ideas and experiences as well as the benefits provided by group discussions. The departments differed in terms of the work performed (technology development and advanced services respectively) but had in common a clear need to be innovative in terms of the output produced, something which in both cases translated into a perceived need to become organizationally innovative, i.e. improve work procedures and structures. At each firm a cross-section of individuals with roles central to the innovation process were identified through discussions between the researchers and representatives of the respective organizations. As a group the people selected covered all important aspects of the respective departments' key activities.

The exercises were conducted separately at the two firms. During the exercises, which lasted for about half a day each, the selected group of people met in a seminar room where the discussion centered on risks and threats to the core processes of the department. The topic or question around which the exercises were based was "What are the major risks/threats hindering us from achieving our objectives". There are a number of reasons for using this question and specifically the notion of risk. Objectives and goals are cognitively significant to innovation. Threats and risks allow participants to focus more explicitly on those elements or mechanisms in their life situation that pertain to the innovation process. Group exercises with a 'pure academic scope' have been shown to produce almost trivial results, consisting of reiterations of corporate vision statements or what subjects expect the researchers to want to hear (Nicolini, 1999) and if focus is on successful innovation people may be tempted to recollect specific success stories, making for post-hoc thinking and pro-innovation bias.

The exercises started with all the participants individually reflecting on the theme question writing down a number of risks. The participants then proceeded to jointly, as a group, discuss and merge the individual risks producing a set of broad thematically structured risk/innovation categories. These categories were then discussed and reflected upon in terms of cause and effect for as long as needed. During the discussion the categories were allowed to change, merge or split up, so that the end result represented a negotiated common understanding of each category, producing a socio-cognitive map of the two departments' organizational risk/innovation schemata.

In this case the exercises were also treated as experiments, which aimed at creating an environment in which the social and the individual were brought fourth in a relaxed yet somewhat chaotic manner, allowing group dynamics and interactions to evolve in a way that simulates organizational reality. The results are thus not to be seen as socio-cognitive maps in a static or even stable sense. As such they should say something about "normal"

innovation, but as in any social experiment the result is not a 1:1 representation of the original situation[3].

Before the results are presented an important methodological point needs to be emphasized. The two empirical cases used in this paper should not be seen as specific types that differ in some inherent or fundamental way. Both units are parts of large multinationals, but one does basic technology development and is situated early in its greater innovation cycle. The other is an advanced services production unit placed late in its cycle. The choice was made to be illustrative of differences, and the two should be seen as examples of innovation practice whose intricacies and divergences point to the need for a more problematized take on innovation.

The Technology Development Organization
Economical constraints were agreed by all to be the most important obstacle to innovation. The focus on positive cash flow and short-term profit demands made it difficult to justify original ideas, which in turn acted to direct activities toward more calculable and conservative projects. The economic bounds were however not only the result of endogenous factors. The costs of developing new technologies and products are generally very high throughout the Technology Development Organization's industry. Demands on test procedures are very rigorous, which makes the verification process of any development project exceedingly costly. The internal quality structure was also seen as an obstacle to innovation, especially with respect to methods for evaluating new ideas, and the high costs in combination with a certain lack of experience from developing radical ideas has produced a situation where conventional ideas tend to be chosen for development.

In a recursive way the historical preference for developing more conventional technologies has established supporting processes and structures which very effectively support these types of projects. Members emphasised the efficiency and drive mobilized by the organization once an idea has been chosen. The tools for conceptually dealing with new ideas however were lacking, as were more practical routines for managing new initiatives. Working routines were deficient when it came to productively managing ideas in relation to external actors and over time. One suggestion was that new ideas be "shelved" until an application could be conceived of. Another was to cooperate with technologically curious customers to elaborate such applications.
In a similar vein the relatively low level of external communications was taken up as hindering of efficient innovation. General market information but also conferences and company visits were mentioned as potential sources of ideas as well as opportunities for validation. The possibility of cooperating with marketing and production people was also briefly mentioned.

The strict project orientation of the organization led to a constant pressure to deliver and tended to focus efforts around existing agreed upon work areas. This narrowed the focus and hindered overall competence development. Employees also complained about being stressed and understaffed, which hampered creativity and the free elaboration of ideas. Overall, employees agreed that work was very stimulating and the general

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[3] There are a number of flaws in the traditional positivist conception of socio-cognitive structures, the main one being its disregard of the context in which any such map is embedded; e.g. people or groups may for political or other reasons chose not to voice certain things or to emphasize others. Elicited cognitive maps are thus always representations of representations and as such analytically distant from any "true" socio-cognitive structure (Eden and Ackermann, 1992).

competence level was high, but that the corporate culture as such did not always encourage creativity.

The Advanced Services Production Organization
At the advanced services production organization the most important barriers to innovation were found to be associated with communication and cooperation of various kinds.

There seems to exist a chasm between sales and delivery of services within the larger Group. Sales people, it is argued, do not fully appreciate the perspectives of the people who produce the actual solutions. This affects cooperation between projects, sales and after-sales services. Two important practical consequences of this divide were brought forth; poorly designed customer contracts and a lack of documentation and diffusion of customer information. The contract situation is seen as especially pressing since the complexity of both products and long term contracts have sales people enter into work relationships without ensuring that there is sufficient backing on the service side. The resulting situation makes it difficult to live up to contracts with lowered profitability, internal conflicts and dissatisfied customers as results. It was suggested that this problem could be remedied by increased communications and improved routines.

Another rather specific communication problem regards customer relations. The department has difficulties communicating to both existing and potential customers the reasons why their customized service solutions command a relatively high price. To manage this problem the custom made solutions must either become more standardized or customers must be taught to appreciate the actual costs. If not the complexity of the product in combination with a high level of customisation makes for unreasonable customer demands.

Partners and suppliers do not always manage to deliver as agreed. Some of them are expensive or do not deliver in time and some sub-systems suppliers have shown lacking ability to solve complex problems. There are also problems with the supply of spare parts as well as general quality issues. Again a clearer contractual situation and supplier reinsurances were seen as parts of the solution.

The support systems in use are out of date and mostly designed for the routine work of yesteryears. More flexible systems would for example include updated information regarding customers' solvency, existing equipment and previous deliveries. This would allow for more informed customer relations and generate trust on the part of customers.

The internal organization is generally unable to efficiently structure offers to customers and then to communicate needs internally. This situation is worsened by an economic model which encourages internal competition and local optimisation. Another problem is that the organization today is designed to work toward customers and custom made products whereas the Group generally and historically has worked with large standardized products and services. Consequently process oriented thinking has limited support in the Group.

The risk of loosing personnel, particularly in sales and technology development, was briefly mentioned.

Results and discussion of the study
The two narratives touch on many of the same areas such as communication and routine work, but at the same time they differ fundamentally in the underlying logics and reasons. To clarify and contrast, two brief assessments of the cases are presented.

Technology Development
LOCK-IN. In the Technology Development Organization industry and corporate traditions have institutionalized practices and mind sets reinforcing a rigidity that prioritizes safe bets and limits creative innovation. This affects what innovations are pursued as well as support systems, work organization, quality structures and other second order factors. Though financial constraints, industrial structure etc are seen as important obstacles to achieving innovative goals, these issues are also perceived as fixed and beyond influence.
DESCRETE. Attention is focused very binarily; choosing a project and developing it. Important discussions take place at a very early stage and discussions of problems generally refer to either the initial phases or problems related to the binarity. Though the actual innovation development process is not without problems these are seen as being under control as the department prides itself as being efficient once the "go-cue" is given. So even though day to day activities involve creative acts on a sophisticated research level, the developed mind set is one of long-term goal rationality where individual activities are perceived as being constrained and steered by the end product.
INTROVERT. Internal issues are very much in focus something which may be to do with the fact that much of the competence and resources which are drawn on are rare and found within the organization. Employees speak of potential benefits of interaction with other units or external actors such as customers or conferences. These ideas were however only briefly mentioned as such possibilities were seen as more or less unattainable.

Advanced Services Development
EMBEDDED. The innovation is heavily embedded in its context both spatially through its linkages outside the organization as well as over time through sales promotion and after-sales. The concept of product is in this respect a social artifact in that it is both defined by as well as receives its main value and meaning in a continuously negotiated social context; fitting with the environment tends to take precedence over a traditional product focus. Even the internal problems mentioned, such as processes for drafting contracts, tend to be directly related to external actors.
COMMUNICATIVE. Internal communication is vital in order to coherently and efficiently keep pace with the external world. Active communication of information from sales, production and marketing is vital both in coordinating development and attaining productive customer relations. On the whole innovation in the ASD has very much to do with active internal and external interface management something which tends to clash with the Parent Groups tradition of standardized solutions.
PROCESSUAL. As a result of the important role different stakeholders, including customers, have before during and after the development of the actual service solution, the continuous nurturing of different relations occupies an essential role in the innovative activities of people. This is not to be confused with the traditional conceptualisation of the innovation process, but refers more to a need for continuous updates of different external (and internal) networks. Stakeholders are involved during the whole phase and not just as one off suppliers and customers.

The two organizations were chosen because they would most likely be considered as similar in many classification codings. They employ about the same number of people, both are high tech, both are part of large multinationals with external customers etc. At the same time the two cases diverge a great deal in terms of things like organizational history, environment, nature of the innovation artifact, personnel characteristics, culture etc.

producing two diverging but relatively stable and integrated innovation units. By recourse to their particular historical developments the organizations have also been "infused with values beyond the technical requirements at hand" (Selznick, 1957: 17). Local realities and rationalities have emerged which are suited to and shaped by the unique development of each organization. Similar to the way the organizations and their innovative practices are historically shaped, the local interpretation and enactment of constructs, such as the reviewed determinants of innovation, differ greatly. One can intuitively acknowledge the presence of innovation in both cases, but concepts like newness, use and product are ascribed with very different meanings. For example the product or outcome in the TD organization was seen as an artifact which was gradually developed until completion, whereas in the ASD organization the outcome was continuously negotiated and received its fundamental value as part of the development process and a dynamic fitting with needs and complementary systems.

The different foci in the two organizations regarding openness to external actors is similar to the distinctions made between for example incremental and architectural innovation (Tidd 1995), regarding the requirements of these two classes of innovation. But instead of retreating to a simple structural contingency perspective where different communication practices are said to suit different 'kinds' of innovation, communication in the two cases are shown to have very different functions as regards producing 'products', maintaining the social order and relating to external stakeholders, as these tasks come together as part of the overall innovation undertakings. Instead of reducing what in reality are complex and multifaceted phenomena to one dimensional concepts, it is acknowledged that external communication was undertaken in both organizations but to a varying degree, in different ways and for different and partly locally determined reasons.

Both organizations lack support structures for dealing properly with innovations. The old routines that exist are not up to date or focus mostly standard work. One may argue that formalization is good for some things, such as supporting projects once initiated as was the case in the TD organization. There is however a certain danger in overemphasizing the formalizable aspects, as shown in the same organization, since such formalization can suffocate the creative aspects of innovation. As in any organization there is a need to balance slack and freedom on the one side with formalized routines. What this balance looks like is however dependent on the situation. In the ASD organization the main problem was that the routines and support systems in place had been designed for the type of standardized production which was normal when the firm was a state monopoly.

The great differences regarding the actual work taking place and the effects this has on local interpretations of the work situations, illustrates how difficult it is to identify and measure specific determinants of innovation. Measures of the amount of external communications, slack or level of formalization in the two organizations would obviously have neglected important reasons and dimensions of what these concepts meant in the respective organizations. Also, as indicated by the assessments interesting facets would have gone unnoticed since they did could not have been caught in the web of received concepts.

Despite the historical problems of nomothetic innovation studies, the ambition of reifying determinants of innovation is still widespread. This is well illustrated by Damanpour's (1991) assertion that no further inquiry is needed into the effects of the "strong and significant determinants of innovation". These are according to his meta-review specialization, functional differentiation, and external communication. Such calls for paradigmatization and conceptual focus are fairly common in management studies.

The general position is most clearly spelled out by Pfeffer who explicitly proposes that: "consensus itself, however achieved, is a vital component for the advancement of knowledge in a field" (Pfeffer 1993: 611), and goes on to argue that as no consensus has emerged "a comparatively small elite" (Pfeffer 1993: 615), should force consensus by deciding "fundamental goals, and on a set of rules to winnow the measures, methods, and theories on the basis of accumulated evidence" (Pfeffer 1993: 616). As seen above the meanings of such constructed certainties tend to become less clear when confronted with the intricacies of innovation practice.

What then could an alternative approach to innovation research look like? Based on the previous review and example, the remainder of the paper presents a number of guidelines and strategies which aim to capture and draw on those aspects of innovation which nomothetic studies and traditional theories tend to bracket away. The goal is to show how both theory and practice stand to benefit from the deviance and novelty which Pfeffer and his likes deem "a substantial waste of efforts and resources" (1993: 610).

Methodological guidelines for the study of innovation

The example above makes clear that detached measures of e.g. complexity of environment or communication would miss their qualitatively different meanings and roles in actual innovation practice. Returning for a while to the discussion of precise definitions and practical relevance, this tells us is that concepts, just at Weber stated, never really exist in real life, but always are a matter of interpretation. Or in our case: it is only when confronted with practice that conceptualizations of innovation receive relevant meanings. Seeing conceptualizations of reality shift meanings in the face of practice it is easy to be hit by a sense of Cartesian angst, a fear that there are no foundations on which to ground empirical research and practical advice. This fear can be overcome but as we shall see a shift in methodology is necessary.

While studies using existing concepts and averages will often reproduce or slightly modify existing theories, the most exciting, revolutionary and innovative is commonly found on the fringes and with the deviants and extremes. What is statistically most normal is therefore not necessarily what we should look for. Poets who challenge language barriers show, in ways that normal language users cannot, the extremes of which a system is capable; and social change typically originates with marginalized groups (Fiske 1994). Similarly studies that focus on average events miss the intricacies of actual innovations unfolding. Langley (1999) for instance argues that Van de Ven et al.'s general model of innovation exists precisely due to reduction of the empirical material. Not only do concepts and abstract theories receive their meanings in the translation provided by their local enactment, but the focus on averages and idealized theories of prediction and control also tends to gravitate findings toward a state of uninteresting and static normality. One way to avoid this "death by averages" is to focus investigations on interesting stories of lived experience, insight and personal learning. These virtues then substitute for stability, abstraction and generalizability; the traditional hallmarks of scientist inquiry.

Abstract theory which aims at truthful correspondence with the world risks producing the worst of two worlds: disenchanted data and uninteresting theories. To re-enchant the study of innovation a reversal is proposed. In depth and passionate studies of actual innovation combined with creative theorizing. The practice of innovation should thus be a source of inspiration for interesting theorizing. In the words of Astley and Zammuto practice provides "grist for the theoretical mill" (1992: 454).

In empirically drawing on the insights provided by the particular, sampling strategy becomes essential. Focus then shifts from representation to purposeful identification of theoretically and practically interesting cases. The worked example above used a type of *maximum variation sampling*. The organizations were chosen because they differed greatly in a number of interesting ways while being similar with respect to others. The results could then be used to criticize and elucidate the use of concepts in innovation management. Other sampling strategies include *extreme case sampling*, where highly unlikely cases are examined for potential insights. A common example is the Success Story genre in the management literature, where companies like 3M, IBM or Microsoft are studied in order to find out how and why they did what they did. A third strategy is *critical case sampling*. Here the researcher seeks out a highly likely or unlikely setting for a phenomenon to be able to generalize based on the logic of "if it could happen here/*does not happen here*, it could happen anywhere/*probably happens nowhere*"[4].

Deviant and extremes should of course not be allowed to monopolize the discourse. An important criticism of the general application of case study methodology is that it tends to focus too much on the exoticisms of deviants and extremes to the detriment of the mundane and the ordinary (Brekhus 1998). In fact ordinary behavior and everyday events are potential wellsprings of insights into the detailed workings of innovation so often called for (e.g. Weick 1974).

Whether investigating an interesting extreme case or exploring what is perceived as normal innovation, there is the issue of level of involvement and of how understanding is best attained. This is a matter which has been extensively discussed among sociologists, ethnographers, action researchers etc. The choice is often whether to observe the research object from a distance, or get involved and thereby become a participating subject. In order to transcend concepts and gain interesting insights it is often paramount that research be conducted close to the normal operations or at least through intimate interaction with its participants. Examples of more participative research are Participatory Action Research (PAR) and the type of Action Inquiry often associated with Argyris and his colleagues (Argyris et al. 1985). The primary outcome of such research is reflection and change in the experiences and lives of those involved. This kind of inquiry of is often used in emancipatory social research into the situations of oppressed or dominated groups (Reason) as well as in consultancy type management research. Results are enacted as insights are gained both by researchers and participants. Such a level of involvement is however not necessary. The point is instead to understand the lived experiences and local "rules of the game" affording researchers new insights and opportunities for theorizing.

To sum up. In order to transcend abstractions and challenge received theory, methodological focus should be on interesting exemplars. Whether extreme, paradigmatic or mundane it is in the details of innovation practice that insights are found, and from these insights and the attempts to make sense of them new and interesting theory may be crafted.

Implications for theory

As can be gleaned from the above, the methodological basis for theory need not be operationalized concepts, averages, correspondence or coherence. Instead good theory can be seen as that which is creative and interesting. Insights into innovation need not come from studying the most standard innovations, or for that matter from studying innovations

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[4] A more comprehensive list of sampling strategies can be found in e.g. Miles and Huberman (1994).

at all[5]. Instead, as the previous section proposed, empirical studies should focus on interesting perspectives and the practices and particulars of innovation. Contrasted with received knowledge, the insights and inspirations drawn from such studies should provide fertile grounds for interesting theorizing.

Theories are per definition context independent (Flyvbjerg 2001: 25) and as such they can never speak directly to any innovation situation. It is through the translation provided by individuals enacting them in practice that theories can become practically relevant. The aim of theories should therefore not be to flesh out detailed prescriptions for action but rather to provide insights and perspective which then, through the aforementioned translation, can *inspire* action. Such theories are not judged by their truthfulness in the sense that they correspond with some objective reality (Astley and Zammuto 1992). Instead those theories which are found most interesting will prevail (Davis 1971). Interesting theories are those which offer fresh perspectives and alternatives, challenge prevailing conceptions and enrich and refine the way we view reality. According to Davis (1971, 1986) those theories which gain repute and have the potential to become classics move the minds of those exposed to them by addressing and challenging their audience's set of routinely taken-for-granted assumptions.

A related property of this type of theory is therefore openness to interpretation. The best theories both speak to innovation in novel and enlightening ways and remain open-ended, ambiguous and relatively broad in their potential interpretations. Since theories are necessarily context independent they will always need some form of application or translation to be useful in practice or in theoretical discourse. For theories which by definition are not part of the mainstream or the average this feature is even more salient. Good theories are thus characterized by their incompleteness of being, ambiguity, openness to interpretation and ability to stimulate creative action. The essence of what an interesting theory *is* is therefore not what it is "in itself" but what potential insights it may produce in its local enactment; the contribution of a theory is not its obvious content but the potentiality it contains.

It is obvious that the view of theory and how theories come to be used proposed here, differs markedly from that of traditional innovation management. Traditional concepts and theories are seen as relatively pure and complete, corresponding with a given reality and affording rather direct implications. The role of theory as advanced here is almost the opposite. Theories are defined by their lack of objectivity, their incompleteness and their openness to interpretation and re-interpretation in diverse settings, as the value lies in their potentiality, ambiguity and open-endedness[6].

Relevance for practice

By engaging with innovation practice on different levels, research on innovation can contribute to individuals' and organizations' practical rationality, judgment and commonsense knowledge. Qualitative studies are often criticized for their inability to produce broadly applicable and general results. This may be the case on some level of

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[5] As Karl Weick eloquently shows, the sources of good theory can come from quite unorthodox research settings: "*If you want to improve organizational theory, quit studying organizations*" (Weick 1974: 487, emphasis in original). Or in the words of methodological anarchist Paul Feyerabend, theories "may be taken from wherever one is able to find them – from ancient myths and modern prejudices; from the lubrications of experts and from the fantasies of crooks" (1980: 47).
[6] Compare with the discussion of knowledge objects in Knorr Cetina and Bruegger (2000) and aphorisms in Davis (1971, 1999).

abstract theory but is less of a problem when results are enacted in real situations. One way of stating the issue is that while it may be difficult for researchers to produce general and directly useful management theory, this is not as much a problem for managers and others engaged in innovation practice where different perspectives, abstract and practical, naturally meet and merge in the sense-making process of the current situation. The dialectical relationship between practice and theory is further emphasized by Selznick (1996) who argues that action is needed to infer understanding of reality beyond the superficial, and Mintzberg who claims that "management training should be directed at people who have substantial organizational experience" (1989:80) to be of use.

In fact the actual transfer of knowledge and merging of new experience with old is an area that is not very well understood. Most knowledge and personal experiences are ill-structured and made up of fragments and memories which are "neither pedagogically nor epistemologically neat" (Stake 1994: 241). And learning in areas which go beyond the simple and rule based usually does not draw on simple well-structured propositional knowledge but thrives on multiple perspectives and varied and engaged experiences (Dreyfus and Dreyfus 1986). The cognitive flexibility and general capacities of humans to act upon diverse and messy experiences and knowledge thus make the approach advocated here quite suitable for teaching as well as for sharing with practitioners. Traditionally researchers tend to construct their version of the world by, in a way, programming readers, training professionals or teaching students the proper and true ways of acting. The proposed alternative is instead more varied descriptions of innovative reality where researchers articulate what is admittedly their and their research object's theories and versions of reality, allowing practitioners to engage these and draw on them in real life practice.

Conclusions

To recapitulate, the rationale behind many contemporary studies of organizational innovation is that: "a good theory should enable accurate prediction and control over events" (Downs and Mohr 1979: 391). They then go on to argue that innovation determinants need to be re-conceptualized on a higher level in order to be cumulative. This focus on concepts and cumulative findings abstracts away important parts of innovation qua practice. It is argued that precisely those aspects which are often abstracted away could contribute to a host of interesting theorizing.

It is therefore argued that researchers, to complement existing knowledge, should not strive to produce better theory of prediction of innovation, but rather better and more interesting theories of innovation; to improve our knowledge by engaging and elucidating innovation in different ways. Innovation thus understood and approached opens up a number of issues, not only regarding methodology and theory development, but also for practice and teaching.

Firstly, this view clashes with recurrent efforts to delimit different research areas. Instead of focusing efforts mostly in the form of variance research and on closing down deviant perspectives on innovation (e.g. Damanpour 1991, Pfeffer 1993), reflexivity, debate and multiplicity in research is needed to elucidate innovation. This of course does not exclude nomothetic research but complements innovation studies with approaches that recognize innovation as a human activity emphasizing interestingness and practical use over "scientific" rigor.

Secondly, it has been argued that detached methodologies gravitate findings toward rather static abstractions. If research is instead focused on lived experiences and on

exploring interesting cases of innovation practice, theorists may extrapolate and elaborate making interesting and informative contributions with potential for widespread and diverse interpretations.

Finally, the focus on aiding practical rationality does not exclude general theories. But as Polanyi said: "rules of art can be useful but they do not determine the practice of an art; they are maxims, which can serve as a guide to an art only if they can be integrated into the practical knowledge of the art" (Polanyi, 1962: 50). The ambition should therefore not be to produce either meticulous description, abstract laws or novelty per se, but to aid practical rationality through enriched discourse among both researchers and practitioners.

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