Developing Organization Studies as an Applied Science using a triple learning approach

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Abstract

This article proposes to use a triple learning approach for developing an applied research stream in the field of organization studies. Research in an applied science, which may also be called a design science, privileges prescriptive knowledge, but for the field of organization studies the nature, use and the skills needed for developing prescriptive knowledge need more articulation.

Useful prescriptive knowledge in the field of organization studies does not consist of simple instructions, but rather of knowledge following so-called CIMO-logic, i.e. knowledge on combinations of problematic contexts, possible interventions, possible intended outcomes and generative mechanisms producing the outcomes. Such knowledge is not to be applied directly, like the application of a formula, but has to be learned by the practitioner: the first learning process. Applying theory in practice can be conceptualized as theory-informed business problem solving. This is a fairly complex process and has to be learned, preferably at business school: the second learning process. Finally, doing applied research, or design science research also is a complex process, which differs from explanatory main stream social science research in content and process as well as in researcher roles and identity. This too can be learned: the third learning process.

Key words: applied science; design science research; prescriptive knowledge; learning; business school

Introduction

Many people regard the business school as a professional school like medical school, engineering school and law school. Business school students expect to be able to apply during their professional careers in business the knowledge and skills, acquired at business school. As organizing is one of the key functions of management, organization studies is a major field for a business school. As a professional school it is important for a business school to drive its organization research to a significant degree as applied science research, i.e. as research aiming to produce knowledge relevant for business. Ever since the transformation of the business schools from trade schools to research-driven academic institutions, authors have voiced concern about the relevance of organization studies for practice (see e.g. Beyer and Trice 1982; Daft and Lewin 1990; Hambrick 1994; Tranfield and Starkey 1998; Rynes et al. 2001). Various suggestions for improvement have been put forward, including proposals to develop an applied research stream within the field of organization studies (see e.g. Van Aken 2004). Applied research, which may also be called design science research, privileges prescriptive knowledge. This article is written on the basis of the hypothesis that the further development of prescriptive knowledge in the field of organization studies needs more articulation of its nature and use, and of the additional skills needed for this type of research by researchers, next to their skills in explanatory research. It proposes three learning processes to overcome these problems.

The article starts with describing the background of the proposals: first design science and design science research, then the focus of design science research on producing knowledge for evidence-informed business problem solving and finally the research products from this design science research in the form of design propositions following CIMO-logic. After that the three proposed learning processes will be discussed.

Design sciences and design science research

Academic disciplines like medicine and engineering often are called applied disciplines. I prefer to call them design sciences. One has applied mathematics and applied physics, which are research streams developing real world applications of respectively fundamental mathematics and fundamental physics. But medicine is not applied biology and engineering is not applied physics: both disciplines have a vast own knowledge base. The mission of medicine and engineering is to develop valid knowledge, which professionals can use to design solutions field problems, like cures for diseases and more reliable, cost-effective railroad systems. Because of this focus on knowledge-for-design, one may call them design sciences.

Simon (1969; 1996) has shown the fundamental differences between research on that what is and research on that what can be. The mission is the first type of research is to describe and explain present reality in a quest for truth; the mission of the second type is to develop knowledge on possible better realities and on how to create them in a quest for improving the human condition. Following this distinction, we can distinguish *explanatory sciences*, like the natural sciences but also including disciplines like sociology and economics, and the above mentioned *design sciences*, like medicine, engineering and law (according to Simon, 1996, also including the field of management). Students in explanatory sciences are trained to become researchers, able to describe and explain the phenomena of interest to their discipline. Students in applied or design sciences are trained to become professionals, able to solve the real world field problems of interest to their discipline. As said, the mission of research in a design science, that is design science research, is to develop knowledge that is relevant for this field problem solving. (This kind of knowledge can also be called ‘design science’. Where there might be confusion, one could use Design Science in upper case as a kind of academic discipline – as discussed above – and design science in lower case as a kind of knowledge, the product of design science research).

Evidence informed business problem solving as core competence of the MBA

The core competence of a professional, like a medical doctor, an engineer or a lawyer is knowledge-intensive field problem-solving (Schön, 1983). Professionals solve real world problems, using the valid, explicit and relevant general knowledge of their discipline, acquired at professional school and continually updated by learning new explicit knowledge produced by the ongoing research in their discipline (as well as, of course, learning from other sources).

Another label for knowledge-intensive field-problem solving is evidence-based practice. This is, of course, in every design science as old as that design science itself as an academic discipline. However, recently it has received special attention in order to promote the use of the most valid and recent research results in everyday practice. This evidence-based practice movement started some twenty years ago in medicine (see e.g. Hamer and Collinson 1999; Trinder and Reynolds 2000), but in the mean time it has been transferred successfully to other disciplines in the social sciences, such as education, social policy and criminal justice (see e.g. Davies et al. 2000; Young et al. 2002), even if this transfer is not without its problems.

Management, if at all a profession (Whitley 1984; Squires 2001), is different from other professions. The reasons for this include the somewhat more limited role of explicit general knowledge in solving specific field problems (among other things because of the need for strong contextualization of this general knowledge), and the fact that real world outcomes are to be generated through influencing others, not directly through own actions (introducing important additional processes between intervention and real world outcomes). Nevertheless, theory does have the potential to support field problem-solving in management and students generally enter business school in the expectation that that potential can be realized.

Following the ideas of the evidence-based practice movement, now there are also calls for evidence-based management, see e.g. Tranfield et al. (1998), Pfeffer and Sutton (2006) and Rousseau (2006). Because of the somewhat more limited role of explicit general knowledge in business problem solving, Tranfield et al. (1998) prefer to use the term evidence-informed management.

Intentional behaviour, including behaviour in organizational contexts, can be conceptualized as problem solving. Intentional behaviour intends to realize certain outcomes, and the problem, then, consists of finding out what behaviour may do so. Combining this with the idea of evidence-informed practice, we may say that the core competence of the MBA is, or should be, evidence-informed business problem solving.

Design propositions as primary output of applied research

Using this perspective, we can say that the results of organization studies are relevant for practice to the extent that they can inform this business problem-solving. Key steps in problem-solving cycles are the analysis of the present, problematic situation and the design, evaluation and choice of the solution. Main stream organization studies tend to be explanatory and thus are analysis oriented; they can well support the analysis step. Applied science research or design science research intends to support also the design and evaluation step. More specifically, a major aim of design science research on a certain class of field problems is to develop design propositions on alternative types of solutions for this class of field problem. The most valid and informative design propositions are field-tested and follow the so-called CIMO logic: if you have this class of problematic ***C***ontexts, you may use this ***I***ntervention type, which will produce through these generative ***M***echanisms these (intended) ***O***utcomes. Interventions include both specific management actions as the change of organizational structures or the introduction of certain management systems. The outcomes given in the proposition typically are direct outcomes, not ‘bottom line outcomes’ like profit or project success. Usually there are too many other factors impacting on bottom line outcomes, next to the intervention in question, to say something valid on such an intervention-outcome relation. See for the idea of generative mechanisms Pawson and Tilley (1997), and for application of this idea in organization studies Van Aken (2005).

A specific example of a design proposition, following this CIMO-logic is:
“If you have a project assignment for a geographically distributed team (class of contexts), use a face-to-face kick-off meeting (intervention type) to create an effective team (intended outcome) through the creation of collective task insight and collective commitment (generative mechanisms)”.

Actual application of design propositions demands a deep understanding of these design propositions and their CIMO-logic, supported by the evidence from field-testing on the one hand, and a deep understanding of the local situation on the other in order to be able to contextualize the various alternative general design propositions and to predict the outcomes of the various interventions.

Learning design propositions by practitioners: the 1st learning process

Design propositions are prescriptive knowledge. Many people have, possibly only implicitly, a fairly mechanistic view of prescriptive knowledge. Prescriptive knowledge is intuitively expected to consist of single, clear instructions on what to do, like the prescription of a certain drug a medical doctor gives to a patient, or like the formula, given to a mechanical engineer to calculate the maximum load for the crane he/she has designed. Then such simple instructions are regarded as impossible or impractical in the field of organization and management, whereupon the idea of valid and meaningful prescriptive knowledge in our field can be dismissed.

In stead of such a mechanistic approach I propose a learning process: applied research aims to produce knowledge to support the learning by practitioners to understand the nature and effects of alternative interventions, the learning of the CIMO-logic of these interventions and the use of this learning in the design and evaluation step of the problem-solving cycle. This learning typically is not based on design propositions in the form of one-liners, but rather in the form of whole articles, reports, books or training programmes, based on design propositions, their CIMO-logic and the evidence from field-testing. The function of the actual design proposition is to summarize the CIMO-logic of the publication. This is the first learning process meant in the introduction.

The main output of any academic research is valid and explicit knowledge, and in applied or design oriented research not only valid and explicit but also relevant for field problem-solving. This implies that knowledge production precedes general consumption and digestion (outside the circle of the developers of this knowledge), and this consumption and digestion (learning) precedes actual deployment of research results in practice. Knowledge production may be collaborative or following mode-2 type approaches (in which the participants learn-in-action, Gibbons et al. 1994), but if it is to be research, it should also produce explicit knowledge to be consumed and digested by a general audience of professionals via texts in a learning process. Actual application follows this consumption and digestion of general knowledge.

Learning evidence-informed BPS by MBAs: the 2nd learning process

Professionals have to learn to apply the general design positions of their discipline to specific field problems. They have to learn to interpret specific field problems in terms of certain classes of field problems and to find the general literature, the general design propositions for these classes that might be applied to their specific field problem. And they have to learn to contextualize general design propositions to specific ones and to learn to evaluate the outcomes of possible alternative interventions in specific settings against certain criteria 'on paper'.

This learning can best be done at professional school in *'clinical settings'*. Business schools often use 'paper cases', which can be good to get a grasp on certain literature by trying to apply that literature to that paper case (although too much exposure of students to paper cases may produce the despised overly analytical MBA; Mintzberg, 2004). But the royal road to learn evidence-informed field problem-solving is to do it in the field while studying at business school and under academic supervision. This means learning to analyse, to design and to act in the fuzzy, ambiguous, power and emotions-laden environment of real life business problem-solving (see Van Aken et al., 2007, for the potential and pitfalls of field business problem solving by students).

This field problem-solving by MBA-students is the second learning process, supporting the development of an applied research stream within organization studies. It is certainly not a new idea, but it often does not get the emphasis in the MBA-curriculum it should have. Field work in MBA-course programmes often is confined to research and analysis, which is the relatively unproblematic first part of the problem-solving cycle, much more innocent than the possibly politically charged and resistance provoking attempts to really change and improve organizational processes. Therefore it is really important for students to get also involved in solution design and in getting solutions accepted (implementation of solutions typically has a too long throughput time for students to remain involved in it).

Learning the nature of BPS by researchers: the 3rd learning process

This second learning process can have a powerful side effect in the form of a third learning process, which possibly can have an even bigger impact on the development of organization studies as an applied science than the other two. This third learning process refers to the learning effects of supervising student field problem-solving by professors.

If a business school is to train professionals, it is in a very specific position. Normally in higher education, professors train their students to become like themselves. In explanatory disciplines like physics and sociology, professors are researchers and train their students to become researchers. In design sciences like medicine and law, professors are professionals or have extensive professional experience and train their students to become professionals. But in business schools students are trained to become professionals by professors who regard themselves largely as social scientists and thus rather as researchers than as (ex-)professionals.

Before the transformation from trade school to research-based academic institution this was different: experienced professionals like Fayol and Barnard taught their students what they had learned in their long and successful careers. This set-up had some merits but produced the well-known problems of the trade school (Gordon and Howell, 1959; Pierson et al., 1959). In academic management education, as opposed to most other design sciences, ex-professionals can only have a limited role (a discussion of the reasons for this falls outside the scope of this article).

The displacement in the business school of professors with a background in business by social scientists has produced much valid and often also relevant research results. It has also created the problem of not having in the school the professional experience most other professional schools can use in education and research. There are many ways to do design science research on and in organizations, but they all do need a deep understanding of the fuzzy, ambiguous, power and emotions-laden environment of problem-solving in organizations. Collaborative research is, of course, an excellent way to develop such understanding. However, not every researcher can or wants to follow this route. But the field business problem-solving by students, discussed above, produces an excellent opportunity, with relatively low entry barriers, for their academic supervisors to develop a good understanding of the world of business organizations. Like their students the supervisors get exposure to the challenges of organizational problem-solving, so they learn to understand the positions, drivers and language games of managers and of other members of the organization. If, as one should do, the field problems to be tackled are in the domain of the research interests of the supervisor, this can eventually produce real engaged scholarship (Van de Ven and Johnson 2006), resulting in better research products, both in terms of real deep understanding and in terms of relevance for practice.

Conclusion

Organization studies as applied science is a challenge. Aiming for the development of design propositions to support a learning process by practitioners (process 1), giving more emphasis on learning knowledge intensive field problem-solving in MBA-curricula (process 2), and learning about real world problem-solving by academic supervisors (process 3), may help to address that challenge.

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