Rigour and Relevance: A PhD Student's Perspective[1]

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Abstract

Purpose: This study argued that desipite what the content of the debate might suggest, there is a conflict between the two concepts of rigour and relevance and their actual relationship is a symbiotic one. Drawing on a definition of symbiosis, the study showed that the concepts of rigour and relevance are actually two separate "organisms" that are bound by a long term relationship that benefits both sides.

Methodology: The study reviewed selected literature concerning rigour and relevance and presented the historical development of the debate and theoretical models of the relationship between the two concepts.

Implications: The implications were presented from a PhD student's perspective and included suggestions on how to approach the issues of rigour and relevance in the research project and how to cope with their seemingly conflicting nature.

Originality: The originality of this study resulted from approaching the issue of rigour and relevance from a biology perspective and extending the definition of symbiosis to the relationship between the two concepts.

Keywords: rigour, relevance, business education

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Introduction

The debate about rigour and relevance in the field of management and organizational theory has been present since its inception in the 1950s and to this day remains as one of the major unresolved issues. Over the years, the pendulum of the debate focus has swung from relevance to rigour and back to relevance again.

Advocates of rigour argue that management and organizational science should follow the path of traditional fields of science such as biology or physics. According to them, it should be based on quantitative methodologies and reliable scientific procedures and its main focus should be on development of theories addressing the most basic questions. On the other hand, advocates of relevance argue that theories of management and organization detached from business practice have no practical value and consequently no reason to exist. In their opinion, the criterion of usefulness and usability should constitute a basic measure of a theory and business problem solving should be a *raison d'être* of the entire business education system.

This study argued that despite what the content of the rigour and relevance debate might suggest, there is a conflict between these two concepts and their actual relationship is a symbiotic one. Drawing on a definition of symbiosis from biology, the study presented that the concepts of rigour and relevance are actually two separate "organisms" that are bound in a long term interaction that usually benefits both sides.

The following sections first discuss the definitions of both concepts. Then they briefly describe the history of the debate describing what has been learned so far and then presenting some recent theoretical approaches, which explain why and how the two concepts influence each other. Finally, the last section discusses what the debate means for PhD students.

Definitions of rigour and relevance

When looking upon the heated debate over rigour and relevance, sometimes it might be difficult to say what it is actually about. The reason for this situation is that different definitions are used by different authors, which result in an ambiguity of both concepts (Augier and March, 2007).

In the case of rigour, the main factor contributing to the conceptual ambiguity is the issue of multiple paradigms, sometimes even referred to as "paradigm wars" (Anderson and

Herr, 1999). Contrary to the natural sciences, management and organizational sciences are based on multiple perspectives including modernism, symbolic interpretivism and postmodernism (Hatch, 2006). Each of these perspectives includes its own specific set of ontological as well as epistemological assumptions that predetermines how researchers approach a given phenomenon (Burell and Morgan, 1979). Different perspectives on the nature of truth and ways of studying it in consequence determine what is considered rigorous research and what is not; since paradigms are incommensurable, no agreement on terms of methodology can ever be achieved (Hatch, 2006). For example, while researchers representing a modernist perspective will attempt to eradicate subjectivity from their research, interpretivists will argue that it is an inseparable element of truth (Hatch, 2006). While some authors argue that this multitude of paradigms and perspectives constitutes a major barrier to the development of organizational and management science (Pfeffer, 1993; 1995), others argue that, on the contrary, paradigmatic competition is something that contributes to theoretical development and that it is highly unlikely that any paradigm would trump or unite the field (Van Maanen, 1995a; 1995b).

Another issue that blurs the definition of rigour even further are different levels of the debate and different terms of reference appearing in the literature (Nicolai and Seidl, 2010). For example, rigour can refer to a way in which a given research project is performed, i.e., whether research data is gathered and analysed in accordance with certain rules that provide reliable output and results are disseminated through recognized channels of communication using established terminology. However, rigour can also refer to the main differences between business schools and other university departments. In this case, the argument about rigour returns to the issue of core differences between fields of science including the issue of multiple paradigms.

In the case of relevance, the situation of ambiguity is similarly difficult. First of all, some authors pointed out that the concept of relevance is flawed by its nature since it does not clarify the point or a person of reference (Augier and March, 2007). In other words, unless one specifies "to whom" a given body of knowledge should be relevant to, one risks a great deal of confusion. Lack of clear terms of reference also imply that the criteria of relevance is virtually impossible to fulfil since there will always be a group of people to whom a given knowledge will seem irrelevant.

Furthermore, similarly to the rigour concept, relevance possesses multiple levels. For example, after performing a comprehensive review of the literature, Nicolai and Seidl (2010) found that relevance has three different levels that refer to scientific knowledge. They distinguished a "conceptual relevance" that helps to understand the problem;

an "instrumental relevance" that helps to design a solution; and a "legitimative relevance" that helps to choose a correct solution. They found that the most important type of relevance science can contribute to is not the "instrumental relevance" (i.e., providing ready tools for decision making and problem solving) but "conceptual relevance" (i.e., increasing the practitioner's understanding of the problem).

However, this study put aside all internal ambiguities of rigour and relevance and chose to focus on the nature of their relationship. For the sake of simplicity, it assumed the definitions put forward by Augier and March (2007) since they were the most comprehensive and covered various aspects of both concepts. Relevance was therefore understood as "experiential knowledge derived from practical experience in the field, stored and communicated by practitioners, focused in time and space and possessing direct immediate applicability into practice."

On the other hand, Augier and March (2007) defined rigour as "academic knowledge abstract, general, and timeless, derived from scholarship, stored in the form of theories communicated by academics." It was immediately visible that even though both definitions refer to the same concept of knowledge, each of them possessed a number of assumptions concerning the ways in which this knowledge would be gathered, stored and transferred.

Table 1. Definitions of rigour and relevance decomposed

	Rigour (Academic knowledge)	Relevance (Experiential knowledge)
People	Academics	Practitioners
Input	Scholarship, research	Practice
Output	Theories	Solutions to problems
Scope	General, abstract	Focused, concrete
Time orientation	Long-term	Short-term

Source: prepared on the basis of Augier and March (2007); Simon (2004).

Table 1 presents the definitions of both concepts decomposed into a number of elements. One can immediately see that each of the definitions refers to a different group of people, i.e., rigour to academics and relevance to practitioners. It is also seen that the definitions treat rigour and relevance as mechanisms of knowledge creation, each with its own specific input and output. In the case of academic knowledge input,

information is provided through scholarship and research, which is then analysed and recombined in ways prescribed by rules of research methodology and produces output in a form of theories. In the case of relevance, the input information comes from everyday work practice, is stored in various forms by practitioners and its output is the ability to efficiently solve problems on the basis of experience.

The first three elements of rigour and relevance definitions carry certain assumptions about their respective content and the main actors involved. From the point of view of this study, it was necessary to emphasize that these elements are qualitatively neutral and describe two distinctively different worlds, each working according to its own logic. Only when combined with the following two elements, they start to bear signs of conflict. In the case of rigour, the scope of its output and its general orientation is characterised as general, abstract and long-term. In the case of relevance, the opposite is true as its output is usually focused, concrete and short-term oriented. These characteristics clearly constitute an opposition and they are usually implicitly or explicitly presented in the centre of the debate about rigour and relevance, implying that there is an unsolvable conflict between the two concepts.

When one talks about the elements that constitute these definitions, one should not forget about the elements that are missing. Even though both definitions mention immediate output and the means of achieving it, they do not address the issue of the ultimate goal of developing academic and experiential knowledge. Such goals could include single challenges such as achieving operational efficiency, progress, innovativeness, revolution, world peace or their combination with other multiple objectives. The point is that as long as it is unknown what the ultimate goal is and whether it is convergent or divergent, it is impossible to assume that the two concepts are in a state of conflict.

Once the definitions of both concepts are somewhat clarified, one can briefly review the history of the debate, paying special attention to the relationship between rigour and relevance.

History of the debate

Even though the debate about rigour and relevance is a valid issue from the point of view of any given field of science, it is particularly pertinent to the field of management and organizational theory. The science of management, as it is known today, was born as a result of a clash between holders of experiential knowledge and advocates of scientific knowledge. These clashes are visible throughout the century-long history of the debate.

Frederick Winslow Taylor was one of the first to realize the shortcomings of management based solely on the experience of foremen. In his writing, he attacked experiential knowledge as one of the three reasons for slow work, stating that "inefficient rule-of--thumb methods, which are still almost universal in all trades, and in practising where our workmen waste a large part of their effort" (Taylor, 2006, p. 4). He then advocated "scientific management" as a way to correct these shortcomings and bring some reason and rigour into the organization of work. Despite the noble cause of increasing prosperity and clear rational assumptions, the implementation of Taylor's scientific methods often led to dehumanization of work, labour disputes and unrest, to the point that Taylor himself was called in before the U.S. Senate to explain the reasons behind his actions. Since then, the story of scientific management is a well-known cautionary tale for advocates of combining rigour with relevance and might be one of the earliest reasons behind the suspicion, lack of trust and ideological conflict prevailing between practitioners and academics.

Before jumping to conclusions about the origins of the rigour and relevance debate, one should take a closer look at Taylor's approach to these two concepts. Wrege and Perroni made such an effort and found that Taylor's experiments were flawed with numerous mistakes and could hardly be called rigorous (Wrege and Perroni, 1974). For example, Taylor argued that a key to increasing efficiency is rigorous scientific planning of work and rest periods to maintain their balance and decrease employee fatigue. However as it turned out, in his famous experiment on pig iron handling, he calculated the time of employees going for another load as the rest time, clearly bending the definition of this concept (Wrege and Perroni, 1974). This example sheds some light on Taylor's motivation as being much more short-term and relevance oriented (i.e., proving the point of increased efficiency whatever the consequences) than rigorous (i.e., proving that the balance between rest and work needs to be maintained to increase the wellbeing of an employee and as a result, his tenure or long-term productivity).

Wrege and Perroni's findings were also significant in light of the more general debate about rigour and relevance. First, these findings indicated that problems and unrest caused by "scientific management" resulted not from too much rigour, or a conflict between rigour and relevance but rather from poor management of their relationship and to be more precise, from compromising rigour for the sake of relevance. Second, they suggested that the prevailing lack of trust between practitioners and academics, lingering on since those early days, might be based on an overvaluation of Taylor's rigour and misunderstanding of the rigour and relevance relationship.

Despite all the shortcomings of early "scientific management," there is no doubt that Taylor and his successors initiated a certain trend that was developed in later years. The second notable development in the rigour and relevance debate came in the late 1950's and its main arena was in American business schools.

In their book "The Roots, Rituals and Rhetorics of Change," Augier and March (2011) described the developments of U.S. business education in 1950s and 1960s. They gave accounts confirming that prior to the 1950s, business schools were generally looked down upon by the academic society as lacking rigour and doing very little of their own research. In those early times, management scholars were perceived as "company doctors," providing hands-on advice and consultations to companies that funded the business schools (Czarniawska, 1999). However, the situation began to change in the late 1950s as a result of two famous reports: the Ford Foundation report entitled "The Higher Education for Business" written by Robert Aaron Gordon and James Edwin Howell, and the Carnegie Foundation report entitled "The Education of American Businessmen: A Study of University-College Programmes in Business Administration" written by Frank Pierson. Both reports called for more rigour in business education, i.e., more theory, more research, more qualified academic employees and higher standards of recruitment and teaching (Augier and March, 2011). The centre of the reformative movement inspired by these two reports was the Graduate School of Industrial Administration (GSIA) established in 1949 at Carnegie Mellon. Rigour in faculty capabilities and research was achieved through multidisciplinary research and inviting faculty from other fields such as behavioural psychology, sociology or political science as well as through emphasizing quantitative research methodologies. Rigour in education was achieved by implementing more mathematics and economic subjects (Augier and March, 2007). George Bach, the founding Dean of the Tepper School of Business at Carnegie, described GSIA as a «hardball place,» with «no room for second-rate work,» where «everyone debated everything.» (tepper.cmu.edu, accessed 30 Apr 2013). GSIA became a model for modern rigorous business education that included fundamental research and a scientific interdisciplinary approach, at the same time providing relevant outputs such as usage of mathematics and computer science in problem solving.

These post-war developments made U.S. business schools what they are now, world renowned centres of managerial knowledge. However, it is also true that this came at a cost. As theories became more sophisticated and research methodologies more complex and prevalently quantitative, each field began forming separate knowledge silos and researchers became more and more detached from rapidly changing business reality. That was a time when the business press and more practically oriented members

of academia led a counter attack arguing that business schools have forgotten about their customers, paying more attention to publications rather than to the business performance of their graduates (Augier and March, 2007). The best summary of this attack was a famous quote by an anonymous dean of a business school stating that "as much as 80% of management research is irrelevant" (Simon, 2004).

Currently, the pendulum of the importance debate remains on the side of relevance. On the one hand, the business press is pointing to the unresolved debate while asking about the future of business schools (Peters, 2012; Brady, 2009). On the other hand, academics themselves began to question the rationality of the "publish or perish" game and the "gap-spotting" approach to research, which despite increasing the overall number of publications resulted in a shortage of innovative or interesting ideas (Alvesson and Sandberg, 2013). However, some researchers took a more positive approach pointing out that there are a number of projects and frameworks that have successfully managed to bridge the gap between science and practice (Hodgkinson and Rousseau, 2009; Starkey et al., 2009; Paton et al., 2013). This study followed their line of reasoning, showing three examples of frameworks combining relevance and rigour.

The first framework that required attention is an example of how some academics tried to tackle the problem of combining rigour with relevance. In 2007, an American organization scholar Andrew Van de Ven published a highly acclaimed book, "Engaged Scholarship". The author started with a statement that boundaries of knowledge tend to be socially confined and that no single group can achieve full awareness of reality. Each form of knowledge is partial: "a way of seeing is a way of not seeing." Strengths of one form of knowledge tend to be weaknesses of another. (Van de Ven, 2007, p.4). He called for cooperation in the form of "engaged scholarship."

> "I propose a method of engaged scholarship for expanding the capabilities of scholars to study complex problems and create the kind of knowledge that advances both science and practice. Engaged scholarship is defined as a participative form of research for obtaining the different perspectives of key stakeholders (researchers, users, clients, sponsors, and practitioners) in studying complex problems. By involving others and leveraging their different kinds of knowledge, engaged scholarship can produce knowledge that is more penetrating and insightful than when scholars or practitioners work on the problems alone." (Van de Ven, 2007, p. 22)

His engaged scholarship offered a diamond-shaped model of research in which different stakeholders are actively involved in every step of the research process including problem formulation, theory building, research design and problem solving. The main

advantage of Van de Ven's model was that it offers a step-by-step guide for cooperation between researchers and practitioners. The main negative accusation towards this book was that it is meant for scholars with very little insight from practitioners, even though the latter are seen as an indispensable part of the process (Sandmann and Thornton, 2008).

A practical equivalent of Van de Ven's engaged scholarship theory is a research stream called "action research," which is sometimes seen as a philosophy of doing academic work that contributes to practice and society (Jemielniak, 2006). Action research assumes combining action (understood as change) with research (understood as scientific reflection) and conducting live experiments on companies to test hypotheses in practice. It is also worth stressing that similarly to engaged scholarship, action research is very democratic in terms of the knowledge creation process, equally valuing practical and academic knowledge and urging all participants to engage in the process (Jemielniak, 2006).

The second framework that is currently on the rise, both in the United States and Europe, is a corporate university model (Campbell and Dealtry, 2003). The idea of a corporate university is not new since the first such institutions, including GE's Crotonville and McDonalds's Hamburger University, were established in 1956 and 1962, respectively. However for many years, their importance and the quality of knowledge they provided has been downplayed as being exclusively company specific, deprived of outside research or a theoretical base and weak in innovativeness. In recent years, some effort to implement more rigour into the corporate university framework was observed as these institutions begin cooperating with traditional universities (Paton et al., 2013) As a result, while still serving the specific needs of their founding companies, they began to successfully challenge the educational monopoly of traditional business schools, which for many years were defended by their long history of achievement and prestigious accreditations (Guthrie, 2013).

The final cooperative framework presents an example of one such accrediting institution. The Association to Advance Collegiate Schools of Business (AACSB) is the oldest institution accrediting business schools and it continuously strives to defend the competitive advantage of traditional business schools by bringing more relevance into business education. Since the assessment criteria for academic teachers based solely on the number of academic publications are being more and more criticised as blocking the recruitment of non-academic candidates, AACSB began to devise new, more diversified ways of assessment. One such initiative aimed at bringing more relevance into business schools is Bridge Programs, introduced in 2006. The objective of these

programmes is to prepare and introduce business leaders to become business school faculty members. This is made possible by creating separate criteria for evaluation of so-called academically qualified (AQ) and practically qualified (PQ) faculty members. As a result of the Bridge Programs, the teaching framework at business schools became less monolithic and more relevant, while students gained more practical perspective (aacsb.edu, accessed 30 Apr 2013).

Summing up this short historical overview of the rigour and relevance debate, one should pay particular attention to aspects that tell something about the relationship between the two concepts. First, one can see that the debate itself has been going on for an entire century, while the pendulum swung back and forth from one point of view to the other. Second, even though arguments on both sides remain more or less stable, over the years there was a certain degree of development in the scale and scope of the debate. Each "swing" brought a wealth of achievements such as scientific management, modern business education and in recent years a multitude of combined approaches to choose from. It would be difficult to deny that these developments have significantly contributed both to science as well as practical knowledge. Finally in recent years, one can observe signs of clear commitment on both sides, with businesses striving for more rigour in their management practices and business schools and academics devising ways of bringing more relevance into their research and teaching. These developments allow one to suspect that the cooperative relationship is becoming more conscious and desirable for both sides.

Relationship between rigour and relevance

The previous sections discussed the concepts of rigour and relevance in line with the traditional approach as two separate and mostly opposing concepts. Indeed, such a perspective is still prevailing today. For example, some authors argue that the gap between rigour and relevance is unbridgeable due to the different style, language and logic of academic and business communities and that the debate about rigour and relevance should be abandoned once and for all (Kieser and Leiner, 2009). Compelling as they are, these arguments might be missing the point. Since the century long debate is far from being resolved, the key to development both in academic and practical knowledge might lie not in separation but in the reluctant cooperation of rigour and relevance advocates. Therefore, it is useful to focus on theories that discuss these two concepts in conjunction rather than separately and consider whether their relationship is actually a conflict or perhaps something else.

Webster's dictionary defines conflict as a competitive or opposing action of incompatibles: antagonistic state or action (as of divergent ideas, interests, or persons) (merriam-webster.com, accessed 30 Apr 2013). The bulk of this definition seems to fit well with the rigour and relevance debate. There is no doubt that academics and practitioners are different and often incompatible, both in terms of personality and in terms of their ways of doing things. However the crux of the definition is a competitive or opposing action, which implicitly refers to ultimate objectives of the two groups being in direct opposition and competition to each other. However is this actually the case in rigour and relevance debate?

As previously mentioned, the definitions of rigour and relevance are more focused on means than aims and do not explicitly discuss the ultimate purpose of developing academic and practical knowledge. If one considers history, it might offer some hints. For example in Taylor's 'The Principles of Scientific Management', the first sentence clearly states that "the principal object of management should be to secure the maximum prosperity for the employer, coupled with the maximum prosperity for the employee" (Taylor, 2006, p. 1). Even though prosperity of an employee rarely crossed the minds of early 20th century industrialists, very few practitioners would disagree with the statement aimed at securing their maximum prosperity. Furthermore, the convergent nature of the underlying motivation behind development of academic and practical knowledge could be found at each point in time of the debate. The imperative of prosperity and progress were paradigms, always implicitly or explicitly present in the Ford Foundation report, Van de Ven's engaged research or the AACSB Bridge Programme. Since the underlying objectives of academic and practical knowledge seem to be convergent, the definition of conflict loses its ground and one should consider alternative relationships.

This study puts forward the biological term of "symbiosis" as much more aptly and accurately describing the nature of the relationship between rigour and relevance with all its complexities and contradictions. The Oxford Dictionary defines symbiosis as an "interaction between two different organisms living in close physical association, typically to the advantage of both" (oxforddictionaries.com, accessed 30 Apr 2013). The word "typically" is used intentionally since the medical definition of symbiosis is quite broad, allowing for three types of symbiotic relationships called commensalism, parasitism and mutualism. Commensalism refers to a relationship in which one organism gains benefits while the other remains uninfluenced. Parasitism refers to a relationship in which one organism benefits at the cost of the other. Finally, mutualism refers to the common understanding of symbiosis as a mutually beneficial relationship, which very often is "obligative," i.e., neither species can survive without the other (britannica.com,

accessed 30 Apr 2013). This complex definition of symbiosis suits the relationship between rigour and relevance very well.

First, a symbiotic relationship is based on the assumption that the interaction takes place between two different organisms. This assumption fits very well both with the general perception of the academic and business worlds as well as with theoretical discussions appearing in the literature in recent years (Kieser and Leiner, 2009; Augier and March, 2007; Nicolai and Seidl, 2010). Second, the history of the debate showed that there has been a close interaction between the proponents of rigour and relevance that spans over a century. Finally, as far as the outcome of the relationship is concerned, the complexity of a symbiotic relationship fits well with the ambiguity of relevance. One can discuss these issues on the basis of theories that treat rigour and relevance in conjunction rather than separately.

The first theoretical model considers precisely the outcomes of the relationship between rigour and relevance. It take the form of a 2x2 matrix proposed by Neil Anderson, Peter Herriot and Gerard P. Hodgkinson and provides a useful tool for conceptualizing different results of mixing rigour with relevance.

Figure 1. Rigour and Relevance Matrix
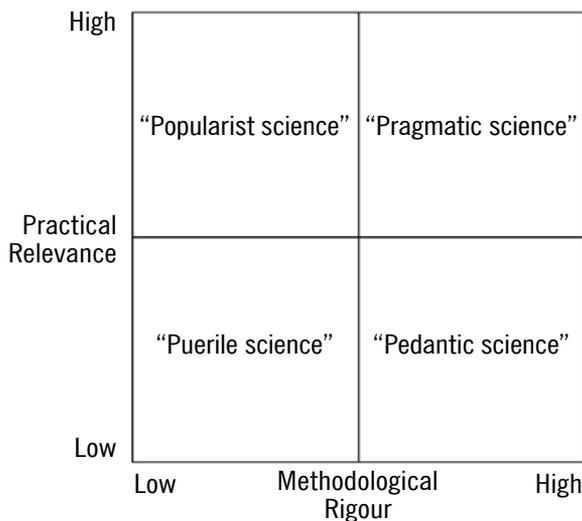
Source: Neil et al. (2001, p. 4).

The main advantage of this model is that it focuses on the outcomes of the symbiosis between rigour and relevance, arguing the desired mixture of both and warning

against domination of one of the approaches (Neil et al., 2001). It provides a useful conceptualization of four types of science resulting from different mixtures of rigour and relevance. So-called "puerile science" refers to research that lacks both rigour and very often relevance and it can hardly be called science at all. "Popularist science", sometimes referred to as "junk science," is a science pursuing relevance at the cost of rigour, constantly searching for new management fads. The pressure of simplistic relevance and staying ahead of the times usually results in compromising rigour, which in turn can lead to potentially dangerous effects similar to the ones from the early days of scientific management. "Pedantic science" refers to rigorous research narrowly focused on abstract issues described in the literature that bears no links to practice. Finally the so-called "pragmatic science" marks the "holy grail" of research, i.e., research resulting from a willing and close cooperation between researchers and practitioners that contributes both to science and practice. This taxonomy of science put forward in this study is even more revealing when matched with the extended definition of symbiosis previously described.

For example, one can understand popularist science through a lens of parasitic relationship, since relevance is achieved at the cost of scientific rigour with a significant negative impact to the reputation of the latter. Furthermore, commensalism provides a good metaphor of "pedantic science," which utilizes aggregated data from business practice without getting in touch with actual business and as a result, often producing results that remain completely detached from reality with neither positive nor negative influence. Finally, mutualism is an obvious metaphor for "pragmatic science" describing a difficult to achieve yet rewarding situation.

This model provides a useful tool for classifying different approaches to business research, as well as for positioning this study's research within a wider framework of a given discipline. However, it does not describe the mechanism of the symbiotic relationship or explicitly show how scientific knowledge can contribute to business practice or vice versa. That is why it is necessary to supplement it with the second model put forward by Alexander Nicolai and David Seidl (Figure 2).

Drawing on Luhmann's systems theory, this model makes a compelling assumption that rigour and relevance (or science and organization) constitute separate social systems with separate logic, different goals and different communication patterns (Luhmann, 1995). This is contrary to the arguments of some authors that these systems are closed, self-referencing and autopoietic and that any communication between them is virtually impossible (Kieser and Leiner, 2009). Nicolai and Seidl's model ventures to uncover the mechanism of intersystemic communication. In particular, they consider how scientific

knowledge can be seen as relevant and what factors influence its transfer to an organization. The model considers three barriers on the way from scientific knowledge to relevant practical knowledge that could be used in the process of organizational decision-making.

Figure 2. Rigour and relevance as separate but interconnected systems
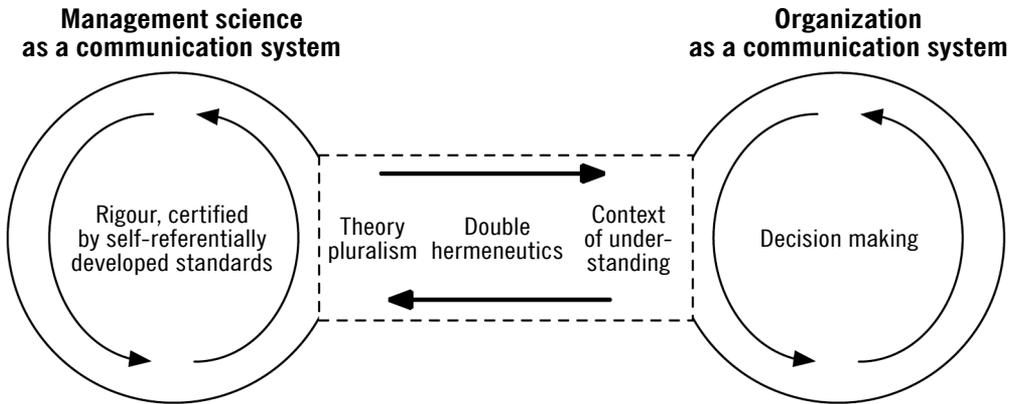
Source: Nicolai and Seidl (2010, p. 1263).

The first barrier is "theory pluralism," which refers to multiple paradigms in management science. Apart from running the risk of being considered non-rigorous by the representatives of other paradigms, in the eyes of practitioners multiple paradigms create a negative image of scientific knowledge as self-contradictory and increasing complexity rather than decreasing it (Nicolai and Seidl, 2010, p. 1273). On the other hand, the often disregarded advantage, given by the theory pluralism as far as communication with business is concerned, is that it allows addressing virtually any business problem and assuming a perspective giving a comprehensive and deeper understanding of the issue (Hatch, 2006; Nicolai and Seidl, 2010).

The second barrier on the way from rigour to relevance is called "double hermeneutics." It refers to an inherent link between theory and practice resulting from the interaction between researcher and the subject of the research. In other words, if a theory aims at being relevant, it has to assume that it changes reality and these changes of reality will inevitably influence the theory itself. Examples of this mechanism are theories that managed to influence practice and as a result, becoming self-fulfilling or self-defeating (Nicolai and Seidl, 2010, p. 1274). The issue of double hermeneutics is an excellent illustration of the complex, dynamic and fragile nature of the symbiosis between rigour and relevance, in which the smallest change in one of the organisms inevitably leads to changes in the other and the redefinition of the entire relationship.

The final barrier is a "context of understanding" stating that in the end, it is practitioners that have to understand the theory and apply it in their own decision making. The height of the barrier depends on the extent to which practitioners need to understand the original context in which the scientific knowledge was conceived (Nicolai and Seidl, 2010, p. 1276). In the case of instrumental knowledge, such understanding can be minimal or even non-existent (e.g., there are plenty of managers employing a "carrot--and-stick" approach without the slightest awareness of Skinner's reinforcement theory of motivation). In the case of conceptual knowledge, that helps practitioners to better understand problems and formulate potential solutions. It is also necessary for them to understand the underlying theories and original perspectives. This requires a close cooperation and willingness on both sides.

To sum up, the second model describes the complex and fragile nature of the relationship between rigour and relevance, which again displays some similarities to the concept of symbiosis. Similarly to the relationship between two living organisms, the perfect mutual relationship between rigour and relevance can take place under a number of conditions in which both organisms can but not necessarily have direct influence.

Discussion: A PhD Student's perspective

One can see that the debate about rigour and relevance is vast and the relationship between the concepts is both complex and important at the same time. It is also a vital question from the point of view of a PhD student, whose project is expected to provide an original and relevant contribution to science and at the same time faces the requirements of academic rigour. Taking into consideration these needs as well as for the sake of relevance, this section takes on the challenge of summarizing the debate and drawing some practical conclusions for PhD candidates.

The first issue that PhD students must take into consideration is the different nature of rigour and relevance. It seems valid to compare them to two different cultures, which are also semi-closed systems based on different communication patterns, meanings and values. Functioning within these cultures requires learning different sets of skills and a different language but in the end it is worth doing. The advantage of understanding both rigour and relevance is similar to the advantages of speaking multiple languages, i.e., it broadens horizons, opens possibilities and efficiency and increases depth of experience. That is why considerable efforts should be applied to understanding both systems despite their underlying differences.

The second issue has been only slightly mentioned in this study but from the point of view of a PhD student, it might be the key to successfully addressing the challenge of combining rigour with relevance. The approach to rigour and relevance as separate social systems as discussed in this study omitted the possibility of creating personal networks of people operating within each of the two systems. Since rigour and relevance are vast subjects, perhaps beyond the learning capacity of a new PhD candidate, it is advisable that students create networks to complement and extend each other's capabilities. For example, while the PhD candidate supervisor will keep a close watch on rigour, fellow students with corporate experience might help with practical implications. Developing such a cooperative network while working on PhD projects might provide a useful exercise for future cooperative ventures both in the academic and business worlds.

Finally, it is necessary to look at this debate more dynamically. The pendulum of the debate swings back and forth, and sooner or later one of the views become the dominant one. So rather than asking "Which one to choose?", PhD students should ask "Which one to focus on now?" The prevailing opinion about the PhD course is that it is a course in rigour and a kind of "rite of passage" that prepares young researchers to better understand and communicate with the academic community, which is important. Looking at the macro changes that took place in business education, it seems that the path inevitably starts with "popularist" or "puerile science" and passes through "pedantic science" to finally reach "pragmatic science." Similarly, a young researcher might begin the PhD journey with popular research interests based on stereotypical knowledge and then filter them in the course of a rigorous research process, ideally ending up with findings that develop theory and contribute to business practice. It is especially worth stressing that rigour is a *sine qua non* condition of findings that contribute to practice, because otherwise one risks presenting false conclusions, which will either enhance existing stereotypes or produce new false assumptions. Although from the point of view of a young researcher, this journey might seem long and troublesome; as Beverly Sills once said, "there are no shortcuts to any place worth going".

Summary

This study discussed the relationship between rigour and relevance, finding that it is more a symbiosis than a conflict. The arguments that support this perspective include the inherently different nature of the two concepts, their long-lasting close relationship and the development of scientific and practical knowledge that has occurred along the way as a result of the debate. At the same time, it was found that perception

of the relationship as a conflict is not justifiable since it is based on a partial understanding of definitions and might result from a misinterpretations of events in the early days of the debate. This study concluded that the relationship between rigour and relevance is a symbiosis rather than a conflict. It suggests that PhD students should patiently develop their capabilities in both concepts through cooperation, while following a path outlined by the history of the debate, i.e. ,through rigour to a combination of both.

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