



UvA-DARE (Digital Academic Repository)

The evolution of management as an interdisciplinary field

van Baalen, P.J.; Karsten, Lucien

Publication date
2012

Published in
Journal of Management History

[Link to publication](#)

Citation for published version (APA):

van Baalen, P. J., & Karsten, L. (2012). The evolution of management as an interdisciplinary field. *Journal of Management History*, 12(2), 219-237.

General rights

It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations

If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: <https://uba.uva.nl/en/contact>, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.



Journal of Management History

Emerald Article: The evolution of management as an interdisciplinary field

Peter van Baalen, Luchien Karsten

Article information:

To cite this document: Peter van Baalen, Luchien Karsten, (2012), "The evolution of management as an interdisciplinary field", Journal of Management History, Vol. 18 Iss: 2 pp. 219 - 237

Permanent link to this document:

<http://dx.doi.org/10.1108/17511341211206861>

Downloaded on: 13-04-2012

References: This document contains references to 70 other documents

To copy this document: permissions@emeraldinsight.com

Access to this document was granted through an Emerald subscription provided by ERASMUS UNIVERSITY ROTTERDAM

For Authors:

If you would like to write for this, or any other Emerald publication, then please use our Emerald for Authors service. Information about how to choose which publication to write for and submission guidelines are available for all. Additional help for authors is available for Emerald subscribers. Please visit www.emeraldinsight.com/authors for more information.

About Emerald www.emeraldinsight.com

With over forty years' experience, Emerald Group Publishing is a leading independent publisher of global research with impact in business, society, public policy and education. In total, Emerald publishes over 275 journals and more than 130 book series, as well as an extensive range of online products and services. Emerald is both COUNTER 3 and TRANSFER compliant. The organization is a partner of the Committee on Publication Ethics (COPE) and also works with Portico and the LOCKSS initiative for digital archive preservation.

*Related content and download information correct at time of download.



The evolution of management as an interdisciplinary field

The evolution of
management

Peter van Baalen

*Department of Decision and Information Sciences,
Rotterdam School of Management, Erasmus University Rotterdam,
Rotterdam, The Netherlands, and*

Luchien Karsten

*Department of Global Economics and Management,
Faculty of Economics and Business, University of Groningen,
Groningen, The Netherlands*

219

Abstract

Purpose – This paper aims to provide insights into the evolution of the concept of interdisciplinarity in management science and management education.

Design/methodology/approach – A range of recently published (1993-2002) works, which aim to provide practical advice rather than theoretical books on pedagogy or educational administration, are critiqued to aid the individual make the transition into academia. The sources are sorted into sections: finding an academic job, general advice, teaching, research and publishing, tenure and organizations.

Findings – The paper finds that in the evolution of management education and management science interdisciplinarity took different forms: synoptic and instrumental. Both forms resulted from different knowledge strategies of competing and cooperating disciplines. It concludes that in The Netherlands instrumental versions of interdisciplinarity in management research and education prevailed.

Research limitations/implications – The paper studies the evolution of interdisciplinarity in management education and management science in the Dutch higher education context. It assumes that the pattern of evolution differs from country to country.

Practical implications – Interdisciplinarity is a complex concept. This study provides practical insights into the dynamics of interdisciplinary collaboration.

Originality/value – Much has been written about interdisciplinarity in science and education. However there is hardly any empirical and historical research on this topic.

Keywords Interdisciplinarity, Management science, Management education, History of business schools, Management history, The Netherlands

Paper type Literature review

Introduction

Many management theorists have observed and criticized the continuing differentiation and specialization of academic teaching and research in management (e.g. Whitley, 1988; Porter and McKibbin, 1988; Cheit, 1991; Willmott, 1994; van Baalen and Leijnse, 1995). Whitley (1988, p. 342) states that management studies are characterized by fragmentation, proliferation of diffuse and unconnected intellectual standards, goals and techniques and multiple interpretations of research results. Pfeffer (1993) observes that the field of organizational studies is characterized by a fairly low level of paradigm development, compared to some adjacent social sciences. Donaldson (1995), states that the field (organization theory) is constituted by several mutually incompatible theoretical paradigms. They negate each other, rather than



build, on earlier work. Cheit concludes in his study in his history of management thought that the essential nature of management remains elusive.” (Cheit, 1991, p. 217).

Some management intellectuals have, therefore, argued that this ongoing fragmentation of management knowledge and curricula into smaller, narrowly focusing sub domains and programs should be halted by establishing a new consensus (Cheit, 1991). Similarly, Pfeffer (1993) believes that consensus with respect to research questions and a method is a critical precondition to scientific advancement of the field. Others advocate reducing the number of different schools of thought to a limited number of main approaches (Volberda and Elfring, 2001). Donaldson (1995) even suggests just one approach (structural contingency theory).

Other management theorists hoped that interdisciplinarity could serve as a “non-place” where academics could exchange new views and different opinions which, in the end, will strengthen the development of management and business studies as an interdisciplinary science. (*Organization*, 2003). A new domain with a new identity being shared by people with a multitude of different backgrounds could take shape. However, interdisciplinary activities in management research and teaching often resulted in disappointments. Knights and Willmott (1997, p. 9) observe that, in spite of the fact that there has been a strong demand for interdisciplinary research and teaching over the last few years, it “often leaves little more than a shrill echo within the corridors of management departments and business schools” and that much lip-service has been paid to the value of interdisciplinary research and teaching in management studies.

Fragmentation and disciplinary organization of knowledge fields are not a unique problem of modern business schools. In his cross-national, comprehensive study on higher education systems, Clark (1983) states that “there is so much to counteract, to overcome, since in the content of knowledge and all the meanings associated with academic subject, fragmentation is a dominant force”. Differentiation and specialization in the production of knowledge are, therefore, immanent to the dynamics in higher education systems within modern societies (Stichweh, 1998; Ringer, 1979).

Although many management intellectuals have often referred to the ideal of interdisciplinarity in management science and education, the concept has yet to be empirically explored. In this paper, we outline the institutionalization of management studies as an interdisciplinary academic field in the Dutch higher education system. We argue that the rise of interdisciplinary management studies in the 1960s-1970s in the Netherlands should be viewed primarily as a response to the rigid, disciplinary organized higher education system that was unable to respond to the new needs of business and society at large. We further argue that the institutionalization of management studies in the Dutch higher education system took place in the context of a wider (US and Europe) debate about the role of interdisciplinarity in higher education. We finally hope to demonstrate that management is a complex academic field where thoughtful boundary strategies are needed in order to progress.

In this article, we will first discuss different views on interdisciplinarity and some social dynamics associated with the institutionalization of interdisciplinarity in higher education.

We then describe the institutionalization process of interdisciplinary management studies in three phases. In the first phase, we describe the evolution of business economics as an academic discipline in the period 1910s-1940s. In the second phase,

1940s-1950s, we discuss the forces in Dutch business and society that made the need manifest for interdisciplinary management education programs as an alternative to the disciplinary business economics. We also discuss in this phase the role of interdisciplinary management education movement in this era. In the third phase, 1960s-1970s we describe how the first interdisciplinary management education programs were adopted in the Dutch higher education system. We then continue discussing the main developments of interdisciplinarity in management studies after the first management education programs were institutionalized. We will then end with some conclusions and implications.

The idea of interdisciplinarity

Although the term interdisciplinarity is quite new, the basic idea of the integration or synthesis of knowledge resonates throughout the history of Western philosophy of knowledge (Klein, 1990). Most great philosophers have expressed their concerns with the overspecialization in knowledge production and the ways this could be resisted. Interdisciplinarity, as Gusdorf (1977) states in his historical overview, is seen as “epistemological panacea”, designed to cure all the weaknesses of exorbitant specialization in knowledge production and teaching. As such, interdisciplinarity generally has a positive connotation, “no one dares to say a word against it.” (Gusdorf, 1977: 580).

In the older academic context, interdisciplinarity referred to the twin notion of the community of disciplines of knowledge (*universitas scientiarum*) and the community of teachers and students (*universitas magistrorum et scholarum*) (Klein, 1990, p. 20). These ideas were inspired by a “leonardesque aspiration” of creating and training universal man, who is competent in all of sciences (Campell, 1969). Well-known versions of this utopian ideal of the integration of knowledge in education are reflected in the grand, nineteenth century educational philosophies of Cardinal Newman about liberal education, of Humboldt about Bildung and in the French pursuit for encyclopedic knowledge and education.

The modern (twentieth century) idea of interdisciplinarity was primarily a response to the increasing specialization and formalization of knowledge in scientific disciplines that began during the late nineteenth century. Interdisciplinarity took many different forms in research and education. In her well-documented and rich history of the concept of interdisciplinarity, Klein (1990) distinguishes two different views on interdisciplinarity: the synoptic (or conceptual) and the instrumental (pragmatic) view (Klein, 1985, 1990; Lynton, 1985).

The synoptic view assumes a natural order of things (like a jigsaw puzzle); disciplines have a predestined position in this natural order. As a whole, they reflect the cognitive composition of nature as a whole. It is assumed here that in the end through methodological unification, a sound coherent theory, which is applicable to a wide range of problems can be developed (Klein, 1990). A well-known example of the synoptic view is the “unity of science”-movement that resulted in the founding of the Vienna Circle in 1924 (Kockelmans, 1979; Klein, 1990). Here logic positivists such as Rudolph Carnap, Otto Neurath, and Charles Morris sought to establish a foundation for the philosophy of natural and social sciences in their project the *International Encyclopedia of Unified Science*. The main idea was that unity of scientific knowledge could be achieved by the reduction of all scientific knowledge to scientific constructs and abstract relations between those constructs. The idea of a unity of science received

harsh criticism from many prominent academics. Dewey, one of the most important critics, argued that the “attempt to secure unity by defining the terms of all the sciences in terms of some *one science* (italics by the authors) is doomed in advance to defeat.” (Dewey, 1938, p. 34). In his view, the unity of science movement should be flexible, open and democratic. It should not “lay down in advance a platform to be accepted . . .” rather “detailed and specific common standpoints and ideas must emerge out of the very process of co-operation”(Dewey, 1938, pp. 33-34).

Another example of synoptic interdisciplinarity was general systems theory. Since the 1950s, general systems theory was, due to the work of von Bertalanffy, Boulding, Asby and Simon, also introduced in social and economic sciences, to promote “organismic thinking” as a complement, but often also contradictory, to analytical thinking (Klein, 1990). It protested against the fiscalist thinking and mechanistic worldview of the unity of science movement. While the unity of science movement attempted to build a unified science by bringing down all theories to scientific constructs and the relationships between the constructs, the general system theory abhorred this kind of theorizing in which integrated organisms were reduced to the interactions of its components (Sass, 1982, p. 304). During the 1970s, general systems theories became increasingly identified with the concept of interdisciplinarity (Regtering, 1983). Although general system theorists claimed high practicality and wide applicability of their theories, in the 1980s these theories were criticized for their superformalism and high degree of abstraction.

Within the instrumental perspective there is no unifying claim; interdisciplinarity is primarily associated with solving practical problems. It works like a pigeonhole; it mobilizes theories from different disciplines in order to solve practical problems (De Wilde, 1992). In this view, the current division of scientific labor is conceived as a given, not by nature, but as a result of historical contingencies and social demarcation activities of groups of scientists. It is here that we see an easy migration of concepts and research instruments across different disciplines. In the instrumental view, it is acknowledged that no individual can achieve genuine competence in one discipline, let alone in more than one discipline. Kockelmans (1979) argues that where an attempt has been to institutionalize this Leanordesque aspiration, systems have developed that produce shallowness with a lowest-common-denominator breadth. Science, as he continues, has become a collective product that is only very imperfectly represented in isolated individuals (Kockelmans, 1979, p. 133).

This instrumental, pragmatic view originated from large interdisciplinary research projects that were set up by the by US and British governments in order to solve unprecedented complex problems during and directly after the Second World War. These interdisciplinary research projects gave birth to new, primarily formalistic and abstract, scientific theories like game theory, dynamic programming, operations research, mathematical information theories, and cybernetics. Large size, mission-oriented projects had a huge impact on recent definitions of interdisciplinarity (Klein, 1990). Most famous was the Manhattan project (building an atomic bomb) in which industry, universities, and the US government collaborated. According to Klein (1990), there were two main reasons why mission-oriented projects became so prominent. The first was that universities received considerable amounts of money from the government and foundations for doing this type of research. The second was the growing awareness that real problems of society could not be solved in “discipline-shaped blocks”. The emergence of Operations Research as a new academic

interdiscipline in the US and Great Britain during the Second World War was based on this instrumental perspective.

The debate about interdisciplinarity was not confined to research. The two views on interdisciplinarity can also be distinguished in debates about educational reforms. In the synoptic view, interdisciplinarity is often associated with pleads for general education. Cardinal Newman's ideas about liberal education aiming at "a comprehensive view of truth in all its branches" (quoted in Lynton, 1985, p. 138) reverberates in modern concepts of interdisciplinary education. The most well-known example here is the Harvard "redbook" *General Education in a Free Society*, published in 1945, that called for core curricula covering Western civilization, literary texts, scientific principles, and English composition, with an additional course in each of the humanities, social sciences, and natural sciences (Klein, 1990; van Baalen, 1995). In the instrumental view, interdisciplinarity in education is strongly associated with problem oriented learning (or problem based learning). Learning should be primarily oriented towards solving problems in society.

As we will show in this paper, both perspectives on interdisciplinarity in research and education have been entertained in establishing interdisciplinary management studies in the Netherlands.

The magical slot era

During the 1960s and 1970s, discussions about interdisciplinarity gained momentum and invoked clear actions that resulted in the set up of new research and educational programs in different scientific fields. In the history of interdisciplinarity, this era of institutional change is called the "magical slot" when innovations received support and reforms within universities could take place (Klein, 1990, pp. 35-36; Anderson, 1985, p. 181). The main idea behind these actions was that the results from science should be put into practice and had to serve societal ends and student demands. At that time, interdisciplinary research and education became closely associated with political activism of dissenting students who criticized academic science for its abstractness and its inability to respond to real-life problems (Shimbori, 1985). However, the implementation of new interdisciplinary research and education programs at universities in Europe and in the US during this magical slot-era raised many organizational problems that were addressed in the well-known OECD-report (1972) *Interdisciplinarity. Problems of Teaching and Research in Universities*. The OECD-study concluded that interdisciplinarity was not an isolated phenomenon, it had spread all over Europe and the US. However, the total picture appeared to an *archipelago*, a number of scattered or regrouped islands, with diverse dimensions and structures, that have broken away from the system that both provoked and rejected them (Berger, 1972). Nevertheless, the enthusiasm for interdisciplinary education and research continued in the early 1980s. It has been critically observed that by the 1980s, American campuses were already witnessing a proliferation of interdisciplinary centers where faculty sought to escape from their home departments.

The Disciplinary Paradox

Disciplinary academic structures can be seen as a precondition for the forming of new interdisciplinary studies. This is what Klein (1990) has called the Disciplinary Paradox: to establish an interdisciplinary field, disciplines are needed as constituting building

blocks. The Disciplinary Paradox suggests that interdisciplinary movements will be particularly strong where disciplinary structures prevail.

Disciplines are often viewed as the basic units of the modern academic enterprise, presuming a natural and non-temporal division of scientific labor that started during the second half of the nineteenth century. The term discipline signifies the tools, methods, procedures, concepts, and theories that account coherently for a set of objects and subjects (Klein, 1990, p. 104). Many philosophers and scientists have attempted to define criteria or methods (e.g. Comte's "reasoning and observation", Popper's falsification principle, Merton's social norms for establishing "certified knowledge") to demarcate the cognitive domain and nature of a scientific discipline. However, empirical research on the history of sciences has shown the contingent nature of the discipline and has alternatively proposed different units of analysis to describe the evolution of different sciences (e.g. field, domains, paradigms, research programs, scientific specialties, research groups, research networks). Considering the historical contingent nature of disciplines and the impossibility to define invariable criteria for demarcating scientific disciplines, some authors propose to study disciplines from diachronic perspective (Bechtel, 1986; Biagioli, 1990; De Wilde, 1992). "Disciplines are", in Kohler's view, "political institutions that demarcate areas of academic territory, allocate the privileges and responsibilities of expertise, and structure claims on resources" (Kohler, 1982, p. 1). In this perspective, it is recognized that social and cognitive factors are interacting variables, which change the identity, the domain, and the boundaries of the discipline over time (Gieryn, 1983; Bechtel, 1986). In our view, disciplines have historically arbitrarily established boundaries that vary from country to country and even from institution to institution. Therefore, the institutionalization of science into disciplines should not be viewed as a smooth intellectual progress and organization of scientific knowledge into disciplines but in terms of "regionally and intellectually carrying continuities and transformations" (Wagner and Wittrock, 1991a, p. 6). In this sense, academic disciplines are embedded in the institutional environment of the national higher education system, or as Gass puts it:

To meddle with the disciplines is to meddle with the social structure of the university in its entirety (Gass, 1972, p. 9).

In addition to Kuhn's emphasis on the social practices and processes in the construction of scientific paradigms, Becher (1989) stresses the relationship between the nature of the knowledge domain (epistemology) and the social organization of disciplinary cultures for which he introduces the concept of "academic tribe". By using this concept, Becher introduces an anthropological perspective in the social dynamics in and between disciplines. Within the boundaries of disciplines, scientists develop their own methodologies, knowledge, languages, and culture (Clark, 1983). However, the boundaries of the different disciplines differ to the extent they are permeable and can be penetrated by contesting disciplines and laymen (Whitley, 1988). Gieryn (1983) views the boundary-work between sciences and between science and non-science as being part of ideological efforts by scientists to distinguish their work and products from non-scientific intellectual activities. In this article, we will look at boundary-work between different scientific disciplines and between science and non-science.

Boundary strategies

An important implication of establishing an interdisciplinary knowledge domain is that heterogeneous groups of academic professions with different disciplinary backgrounds are involved. A central point in our emerging perspective is that disciplines and interdisciplines are the product of three types of boundary strategies: abstraction, monopolization and association strategies of professions in historically contingent fields of science and practice[1]. These strategies are inspired by conflicts or commonalities of interests of the participating scientists and other stakeholders of the knowledge domain. For this reason, interdisciplinary knowledge domains are constantly contested by boundary strategies of other stakeholders. We describe these three strategies briefly.

Abstraction refers to the disembedding of meaning from its local and temporal context (Giddens, 1990). It is viewed as an important strategy to define, control and defend the knowledge domain (Abbott, 1988). The more abstract the knowledge can be developed, the harder it becomes for laymen and other academic professions to penetrate the knowledge domain. It is important to note that abstraction is a form of reductionism: “it works by letting the few stand for many” (Boisot, 1998, p. 50). The downside of this abstraction strategy is, of course, that the knowledge becomes disconnected from practice, thereby losing its legitimacy to the laymen.

Monopolization refers to the process by which scientists and professions succeed in claiming and closing a field of knowledge and the interpretation of this knowledge (Gieryn, 1983). A successful closure (“balkanisation”) of a domain of knowledge by a particular group logically implies the exclusion of others. According to Campell (1969), this process of closure originates from “ethnocentrism”, “i.e. the symptoms of tribalism, nationalism or in-group partisanship in the internal and external relations of university departments, national scientific organizations, and academic disciplines”.

Whereas disciplines are the result of abstraction, closure and segmentation, interdisciplinary knowledge domains are the outcome of associative strategies of scientists (and university administrators, stakeholders external to the university) (Selander, 1990). These strategies refer to the cooperative activities among scientists to achieve certain common goals and to solve boundary conflicts. Associative strategies are means to reduce professional conflicts and intend to mobilize resources to establish a new interdisciplinary knowledge domain. Associative strategies are mostly temporal and dissolve when the agreed objectives have been attained.

The forming of a discipline

The rise of interdisciplinary management studies after the Second World War can only be understood against the background of the development of this new intellectual field in the pre-war period. Locke (1984, 1989) showed that, in this period, the evolution of management studies varied from country to country. Idiosyncratic educational heritages and different patterns of industrial development have influenced the way management studies were formed. The main difference between the Dutch and US situation was that, in the Netherlands prior to the outbreak of the Second World War, a new academic (sub-) discipline (business economics) was formed. In the meantime, in spite of the early and strong development of functional disciplines, management in the US remained a fragmented and eclectic field of research and education (van Baalen, 1995).

In spite of this fragile evolution of management studies, US business schools saw a rapid growth of student enrollments in the interwar period. From 1920 to 1929, the student population at business schools grew from 36,456 to 67,496. The number of business schools increased from 12 in 1912 to 120 in 1939. The lack of an integrative body of knowledge and the tight orientation of most schools to the needs of business resulted in an increasing fragmentation of the curricula that emphasized technique and vocational skills. Moreover, business schools' curricula saw an explosion of topics and courses during the 1920s, which resulted in confusion in the offering of courses. In the late 1920s and early 1930s, a general dissent and criticism rose about this ongoing subdividing of management knowledge in "self-contained subjects" (Pierson, 1959, p. 48) and intimate (financial) bonds with the world of business. The typical response to this increasing specialization at the US business school was not to work on a general theory of management but to restore the old Anglo-American university ideal of "liberal education". In their influential research about American business schools, Bossard and Dewhurst (1931) recommended:

[...] a broad background of general and economic knowledge, a disciplined capacity for independent thinking, a facility in oral and written expression, and an instinctive appreciation of ethical values and responsibilities should constitute the primary goals of professional training for business (Bossard and Dewhurst, 1931, p. 222).

Harvard responded to this call for "businesslike liberal education" by inserting courses in Business History (1927) and Business Ethics (1928) into its curriculum. Pleas for liberal education gained momentum during the years of The Great Depression. In a Harvard Business Review-article, "The failure of business leadership and the responsibility of the universities" (Donham, 1933), Wallace B. Donham, dean of the Harvard Business School, criticized the failure of business and political leadership. The main problem was overspecialization and the lack of interest to consider actual business problems within their broader, societal context. Or, as Donham put it: "It is no one's problem to consider things in their relations" (Donham, 1933, p. 419).

Compared to the situation in the US, the interwar developments of management studies in higher education in the Netherlands took a quite different track. Academic business education in the Netherlands began in 1908 with the appointment of J.C. Volmer, an accountant, as a professor at the technical university (Technische Hogeschool) of Delft. The first Dutch business school was founded (Rotterdam, 1913) during the business school movement in the US and Europe at the turn of the century. The Commercial Faculty of the University of Amsterdam followed in 1921, and the Independent Catholic Business School of Tilburg (in the southern part of the Netherlands) in 1927. Within these schools, the evolution of *Bedrijfsleer*, the forerunner of Dutch business economics, took place. Until the 1920s, *Bedrijfsleer* was an unrestricted and fragmented field of commercial and industrial courses, which lacked an integrating formal object. It was called a *Kunstleer* instead of a science and was, on the one hand, based on Taylor's scientific management and on German bookkeeping sciences on the other hand. Courses in technology, bookkeeping, languages and scientific management were all part of the curriculum of this school.

Until the early 1920s, the field of management was a contested "non-place" without an underlying synthetic framework that could knit these courses to each other and for which no division of professional and scientific labor was established yet (see Abbott, 1988). The accountants were very ambitious to emancipate their

controlling and financial advisory activities from the ordinary bookkeeper status and, at the same time, distinguish themselves from the scientific management engineers working in this field. Accountants envisioned the engineers as dilettantes not capable of doing the complex accountancy work (e.g. on cost pricing). Within one of their leading professional organizations, the accountants adopted scientific standards for their professional exams by bringing these to an equal level of university education (they even prompted a kind of PhD-thesis). By tying accountancy to modern economic sciences, the accountants transformed management into a new academic discipline: business economics. A great deal of their “scientific” work was already done within the professional accountancy organizations and was later adopted in the curricula of the academic business schools in the twenties (De Vries, 1985). The abstraction of the contents of the accountants’ work and education was also intended to exclude the engineers from greater parts of the administrative and financial management domain. By introducing economics theories in business studies, accountants succeeded in monopolizing the understanding of business processes in a disciplinary, economic perspective: business economics. The engineers could not keep up with the abstraction and monopolization strategy of the accountants. A few attempts were made to establish a new interdisciplinary engineering science, called “technical economics” (Technische Economie). These attempts failed due to the the lack of support of the engineering professors, who thought that mixing up engineering with economics would devaluate the status of the engineering disciplines (van Baalen, 1995). Business economics was not just a new (sub) discipline within the higher education system; it was also about the establishment of a social hierarchy of (future) disciplines within the emerging management domain (see also Biagioli, 1990).

During the 1920s and the 1930s, the new business economist community discussed the nature of the new discipline. The debate was initiated by the psychologists who invaded the management domain. The business economists discussed whether and how the human factor should be integrated in their economic theories. This discussion segmented the Dutch business economists into two academic tribes, the pragmatists (Rotterdam) and the dogmatists (Amsterdam). The pragmatists, inspired by the American economist J.M. Clark, advanced the idea of “different concepts for different purposes”. The ultimate objective of this new economic science was to serve practice. The dogmatists took an “economic ethnocentric” perspective. They thought that human factors should be excluded from economics as they blurred economic analysis. Until the late 1960s, this schism dominated the discussion within the discipline of business economics.

The process of disciplinarization of management studies into business economics went concomitant with the institutional disciplinarization of academic business schools. The duration of study was lengthened, doctoral and doctorate programmes were developed, the enthusiasm for undergraduate programs decreased, and practical and non-economic courses were eliminated.

Preluding interdisciplinary management education

The founding of the Dutch interdisciplinary management schools in the 1960s and 1970s co-evolved with a broader institutional reform of the university system that began directly after the Second World War and with the revival of firms in the recovery of the post-war economy. At least three major post-war developments gave rise to the interdisciplinary movement in management studies. The first was the

growing criticism among academics on the isolated position and “ivory tower”-orientation of the university in Dutch society. The debate about the role of universities in the Dutch society started in the early 1930s but subsided during the economic recession in the 1930s and further subsided by the dawn of the Second World War. Nevertheless, germs were seeded in regards to thinking about reforms of the university system and directly after 1945, the discussion on the role of universities was resumed. The very long duration of academic studies, the increasing specialization, the limited orientation towards problems in society, and the lack of differentiation in pedagogical objectives were vehemently criticized. Although no great structural reforms in the higher education system were carried through within the short term, the call for a transformation created a favorable climate of opinion to experiment with interdisciplinary educational programs.

The second development was the call from prominent captains of industry for the need of a new class of professional managers that could lead the reconstructing and rebuilding of the post-war, devastated industry. These new professional managers should differ from the usual graduates of the schools of engineering and economics; they should not be specialists but broadly educated generalists capable of integrating engineering, economic and social sciences. These industrialists demanded for “general educated intellectuals for medium sized companies” (van Baalen, 1995).

The third development relates to the influx of American ideas about management and management education in the postwar period. Until the 1950s, concepts of management education and interdisciplinarity were scarcely known in the academic and business world. Management was not thought to be a profession in itself. New ideas about educating young people for business were comprised in the concept of de-specialization, which had in fact a negative connotation. This changed rapidly after the import of American ideas about management education within the general framework of the Marshall Aid (van Baalen, 1995; Gourvish and Tiratsoo, 1998). Hundreds of Dutch business academics and representatives of the business community traveled across the Atlantic Ocean to be introduced to the concepts and methods of modern professional management. At the same time, many American business professors and consultants visited European countries, i.e. Holland, to evangelize about American management methods, training and education.

The interdisciplinary management education movement

The rise of the Dutch interdisciplinarity movement for management education has its origins in the Inter University Contact for Management Education (IUC), which was founded in 1951 (van Baalen, 1996). It started with a small international group of engineering professors, but as they became aware that management could not be studied and taught from a disciplinary engineering perspective, economists, psychologists and sociologists were invited to become associated with the IUC. This organization played a decisive role in implementing American ideas about management education. In contrast to the prewar period in which scientific domain conflicts and monopolizing strategies dominated, the postwar period was characterized by associative strategies of engineers, business economists, psychologists, sociologists and representatives of industry who worked together within the framework of the IUC on common goals.

In spite of these associative strategies, there was a firm intellectual clash between business economists on the one hand and psychologists and sociologists on the other

hand. The former were resisting the pragmatic American ideas about management education and especially the lack of disciplinary rigor in US management science. Consequently, business economists were not very receptive to the ideas of the human relations movement to position the human factor at the center of modern management. Business economists argued that the human factor might be important to managerial decision-making in practice but should be excluded from economic analysis. This scientific domain conflict resulted in the forming of new business disciplines (business psychology, business sociology) and in the institutional and disciplinary partition of the management domain.

In short, the 1950s were, on the one hand, characterized by associated strategies between different business professions in management education. Their efforts resulted in the founding of interdisciplinary educational institutes exogenous to universities. The impossibility to insert educational reforms internal to the university reflected the conservative attitude of the universities towards pedagogical innovations. On the other hand, the human relations movement gave rise to the forming of new business disciplines who contested the dominance of business economics in the management field.

The early years following the Second World War saw a growing sense of urgency about the need for de-specialized, practice-oriented management education. It was an attempt to de-demarcate scientific cleavages and to de-institutionalize boundaries between scientific and non-scientific education. This instrumental idea about interdisciplinarity from the part of the business world and some business professors was mixed up with synoptic ideas that originated from the discussion about the reform of the university (general education). There was no interest in interdisciplinary research or in an interdisciplinary science of management. Almost all discussions focused on de-specialized education in (business) economics and engineering. The concept of de-specialization was barely developed at that time; it precluded on the more sophisticated concept of interdisciplinarity in the 1960s and 1970s.

The rise of telic institutions

Results of the interdisciplinary management education movement were modest in the 1950s. The biggest success was the foundation of institutes for post-experience management education that were rather loosely connected to universities. During the 1960s, this situation changed when the interdisciplinary movement (not only in the management) received increasing support from forces outside the universities. Many began to believe that tough problems in society and science would yield if new interdisciplinary attacks were mounted. Anderson (1985) has called this period a “magical slot” in the history of interdisciplinarity. There were two major developments that contributed to the rise of interdisciplinary management education programs.

The first was the educational demand of the business world. Prominent representatives of Dutch multi-nationals (Shell, Philips, Unilever, etc) were perturbed by the slow progress the restructuring process of the Dutch higher education system. These business companies were confronted with a fast growing influx of academic specialists who were all speaking their own specialist language. There was a serious fear that their corporations would collapse into diverging and fragmented specialisms. Out of this fear, a need was born for a new breed of broadly educated generalists, so called bridge-builders, who could hinge between the disciplinary educated business specialists.

The second was the intellectual contribution of outstanding American management theorists like Herbert Simon, Richard Cyert, and James March to the development of a new management science in the 1950s and early 1960s. Simon's (1947, 1955; Simon and March, 1958) focus on decision-making, bounded rationality, and non-maximization dictum paved the way interdisciplinary management theories. It broke down the very foundation of the classic economic theories that was caged by the maximization assumption and *ceteris paribus* clause in economic science. Cyert and March' (1963) seminal book *A Behavioral Theory of the Firm* can be conceived as the breakthrough of an interdisciplinary management science as it advocated an inductive, empirical, multiple actor decision making approach at micro-levels and the elimination of the *ceteris paribus* clause. Quoting J.M. Keynes, they stated: "Economics presupposes psychology" (Cyert and March, 1963, p. 310).

This new management science revived the debate among Dutch business economists about the interdisciplinary nature of business and management studies. It segmented the business economists community again into various "tribes". Between the two extreme positions (proponents and opponents), many professors sought a nuanced position in this debate. Professor J.L. Meij, a prominent business economist at that time, wrote an influential article "Management, a common province of different sciences" (Meij, 1962). He advocated a "synthetic approach", not a new management science. He rejected the American new management science in which the different business disciplines were unified (and in fact reduced) to one meta-science:

The difficulty here is that we have no common denominator for the different relationships between the managerial phenomena if we consider them from different points of view. This is the unsurmountable impediment also of applying mathematical techniques to actual management problems; we can apply them to a problem formulated from a technological, economical, psychological or whatever point of view, but we are unable to apply them at the same economic, sociological or psychological relationships (Meij, 1965, pp. 64-65).

Meij's synthetic approach emphasized interdisciplinary thinking which is "to understand the relativity of different approaches and to make a choice wherein all of them were taken into consideration" (Meij, 1965, p. 66). In a way, this was a revolutionary view as it degraded business economics from its hierarchical position in the management domain to an equal position alongside other disciplines. Many Dutch professors in business economics expressed similar doubts about the disciplinary and dogmatist conception of business economics. However, most of them did not leave their home discipline of business economics but sought to integrate business economics with ideas from the new management science (esp. elements of the behavioral theory of the firm). While most of them did not believe in a new interdisciplinary management science, they "tolerated", and sometimes actively participated in, the founding of business schools in the 1960s and the 1970s. These schools were explicitly founded in order to train and educate a new breed of young, high-potential people for business; not to develop a new science of management (van Baalen, 1995). The new business schools broke with a long Dutch tradition in higher education in which science and academic education were inextricably bound together (education through scientific research). In the process of implementing business schools in the higher education system, an instrumental perspective on interdisciplinarity prevailed.

During the 1960s, professors from different disciplines, faculties and universities worked together on the implementation of interdisciplinary business programs in

schools of engineering and economics. Most of these programs were set up on an experimental small-scale basis, sometimes in an interfaculty institute. Grant and Riesman (1968) have used the term *telic* institutions to describe these purposive reforms, which had a strong sense of mission and distinctiveness. These *telic* institutions claimed a high degree of autonomy and freedom to act with respect to the mother-disciplines and the bureaucracy of the university.

The interdisciplinary movement in Dutch management education was primarily born from an educational demand. In contrast to American management theorists, Dutch advocates of the new business schools were skeptical about the development of a new integrated management science in future. Their reasons for founding new institutes of interdisciplinary business education were primarily inspired by instrumental motives i.e. the provision of practice-oriented bridge-builders. Restructuring the older disciplines into a new *omni-science* of management was not felt a realistic option.

In the course of the 1970s and the early 1980s, this skeptical opinion slightly changed into a more synoptic version of interdisciplinarity, which was based on redefining boundaries of the functional management disciplines. The main purpose of this reform strategy was stimulating reflective thinking in dealing with complex management problems. During these years, interdisciplinarity became closely associated with general systems theory and sophisticated theories of decision-making. Both types of theories were primarily concerned with the objects that were studied instead of departing from disciplinary perspectives. The rather autonomous position of the *telic* institutions strengthened the interdisciplinary zeal within these organizations.

The interdisciplinary aftermath

Since their founding in the 1960s and 1970s, these *telic* institutes have changed dramatically. Enforced by the Higher Education Act (1981), these experimental institutes had to conform themselves to the regular system of higher education. Interdisciplinary business administration programs were set up in regular schools and in the course of the years, lost much of their interdisciplinary zeal.

In her well-documented study on interdisciplinarity, Klein (1990) signals a general shift from the “euphoria of creation” about interdisciplinary projects during the 1970s to empirical realism in the 1980s and early 1990s. The start-up years came to be viewed as the Golden Age in the mythology of many *telic* institutions. At the conceptual level, it became clear that schools should abstain from designing meta-conceptual schemes, which pretend to integrate all kinds of knowledge and disciplines like the general systems theory. It was launched as a grand assemblage of presuppositions about the working of organizations, which represents the complex reality. However, during the 1980s, the general systems theory was criticized for its high abstraction, its superformalism, the lack of criteria to determine system boundaries, and the inability to deal with conflicts and processes of change; general systems theory has become a discipline in its own right. The same of kind of criticism was voiced against rational decision making theories in management. As Leavitt (1989) has demonstrated, decision making is only one aspect of the total management process. Management scientists have overemphasized this element in negligence of the entrepreneurial and implementing aspects.

While the discussion about interdisciplinarity in Holland subsided, it became subject of an intense, international debate after the publication of Burrell and Morgan's (1979) study about the influence of sociological paradigms upon organizational analysis. The authors were convinced that the four paradigms were mutually exclusive and incommensurable as "they offer different ways of seeing". A synthesis is not possible, since in their pure forms they are contradictory, being based on at least one set of opposing meta-theoretical assumptions. The impact of the Burrell and Morgan-debate was that incommensurability became an accepted and legitimate philosophical stance in the business schools. It relieved many management professors from a never-ending search for synoptic interdisciplinarity in research and education. Serious epistemological reviewing to investigate how theories, models or techniques could be combined or integrated was no longer a commonly shared academic ideal. Moreover, at the moment the business schools were adopted into the regular higher education system, there was no longer a need to legitimize and present themselves as interdisciplinary. On the contrary, once encapsulated into the system, they felt they had to prove that management is a "real" discipline, with its own theories, concepts, methodologies, journals, peer-review systems, etc. This resulted into a paradoxal situation in which the intensive debate on incommensurability in the 1980s and early 1990s allowed for a re-disciplinization of sub (functional) fields within the larger domain of management studies. This neo-balkanization of the functional disciplines has formed new clusters of specialties, which tend to behave like disciplines leaving interdisciplinarity gaps in between (Campbell, 1969). At best, management can be called an interdiscipline, an assemblage of methodologically loosely connected sub disciplines, orientated on management and organization problems.

Even the traditional integrative courses like strategy, business policy and organization have become disciplines in their own right and behave as functional specialisms. They have their own scientific journals, conferences, peer-communities, methodologies, theoretical constructs etc. Whitley (1988) characterized management sciences as a fragmented field, which is subject to conflicting interests of different stakeholders and audiences. Interdisciplinarity did not simply emerge by bringing scientists with diverse disciplinary backgrounds in close proximity.

Conclusion

Management as an academic field of research and education is facing increasing specialization and fragmentation. Koontz (1961) identified different sources of what he called "mental entanglement in the Management Theory Jungle": semantic problems, differences in the definitions of management as a body of knowledge, a priori reasoning, misunderstanding of principles, and inability or unwillingness of management theorists to understand each other. By signaling these underlying, seemingly trivial semantic but also social mechanisms in the production of management knowledge, Koontz pre-empted in a very early stage on later discussions about the social production of science. The production of scientific knowledge is neither seen as the result of rational argumentation and empirical findings connected by a coherent set of methodological rules nor as the logical response to differentiation and specialization in reality. It is conceived as a social construct, the outcome from interactive and interpretative work of participants, involved in a continuous negotiating process and power plays about knowledge claims (Boon *et al.*, 1991).

In this paper, we have focused mainly on how different academic tribes tried to balkanize and protect their discipline and how academic innovators attempted to create alliances to build an interdisciplinary field of management studies.

The history we have described is a dynamic one. At the moment that a particular academic tribe is close to monopolization, boundary conflicts will arise with other tribes. What makes management studies very vulnerable to these tribal dynamics is the affiliation with the business world. It places clear constraints on the abstraction strategies of disciplinarians. The more abstract the content of the domain and the more the boundaries of this domain are impermeable for the lay public, the greater the chance that the discipline becomes disconnected to the practice of organizations, resulting in what Schön (1983) has called the “rigor or relevance-dilemma”.

We have attempted to answer the question whether management is interdisciplinary, not from a normative but from a historical perspective. In the Dutch situation, we can conclude that synoptic versions of interdisciplinarity did not root in the new business schools. In research, a disciplinarian outlook prevailed. In spite of a few attempts to take general systems theory as the common, integrating framework for studying management problems, instrumental conceptions of interdisciplinarity returned in the business schools. There was a brief “non-place” period in the 1980s, followed by re-disciplining of functional management domains. In education, a pragmatic, instrumental form of interdisciplinarity dominated in the business schools.

From this historical perspective, we conclude that interdisciplinarity has been variously defined as a methodology, a concept, a process, a way of thinking, a philosophy, and a reflexive ideology (see also Klein, 1990). In management studies, all of these variations have been entertained.

Today and in the future, interdisciplinarity in management studies will remain a significant intellectual and educational challenge. We do not believe that the intellectual challenge will be solved by epistemological unification (synoptic interdisciplinarity). As Murray (1983) argues, “Perfect knowledge is a chimera; imperfect knowledge our timeless condition” (quoted in Klein, 1996, p. 223). In the old interdisciplinary ideal, the aim was to overcome the differences and incommensurabilities. Today, as Klein (1996) argues, we realize that differences matter. Any (forced) unification will lead to reductionism and consequently to incomplete theories, concepts, and problem solving. Incompleteness of disciplinary solutions will be corrected by new emerging inter-disciplines. The rise of the behavioral dimension in several management disciplines (e.g. behavioral logistics and supply chain management, behavioral business ethics, behavioral accounting) exemplifies this correction. We do not think that a pure problem-driven approach (instrumental interdisciplinarity) will thrive as it does not allow mastery of disciplinary depth. We, therefore, believe that ecology of management disciplines within management studies is an interesting and promising view on interdisciplinarity. This ecology does not emphasize homogeneity of objects, methods, and theories but stresses the importance of communicative action between disciplines (Klein, 1996). The challenge for the business school is to host this ecology of management disciplines and to stimulate interaction between these disciplines. Future research on the development of management studies should focus on the management of the ecology of disciplines within the business schools. The ecology view should, in our opinion, on the one hand prevent “restless research” (Klein, 1996) that incoherently moves out in many directions and on the other hand allow for a long term development

of a variety of management disciplines contributing to solving problems of business and society.

The educational challenge is to avoid “being stuck in the middle” by compromising on disciplinary depth and interdisciplinary breadth. The ecology view of interdisciplinarity allows on the one hand for disciplinary training and thinking and emphasizes on the other hand reflexivity and communicative action to other disciplines within this ecology. The disciplinary-interdisciplinary trade off in universities is in fact a false one. One of the biggest fallacies here is that university education is still often viewed as a one-shot event instead of life-long learning process in which depth and breadth alternate along one’s career.

Note

1. A large number of boundary strategies are discussed in Klein’s (1996) book *Crossing Boundaries. Knowledge, Disciplinarity, and Interdisciplinarity*.

References

- Abbott, A. (1988), *The System of Professions. An Essay on the Division of Expert Labor*, The University of Chicago Press, Chicago, IL and London.
- Anderson, D. (1985), “Interdisciplinary innovations in traditional contexts”, in Levin, L. and Lind, I. (Eds), *Interdisciplinarity Revisited: Re-assessing the Concept in the Light of Institutional Experience*, OECD/CERI, Stockholm, pp. 181-9.
- Becher, T. (1989), *Academic Tribes and Territories: Intellectual Enquiry and the Cultures of Disciplines*, Open University Press, Milton Keynes.
- Bechtel, W. (1986), “The nature of scientific integration”, in Bechtel, W. (Ed.), *Science and Philosophy: Integrating Scientific Disciplines*, Martinus Nijhoff Publishers, Dordrecht, pp. 3-35.
- Berger, G. (1972), “Opinions and facts: interdisciplinarity”, in Apostel, L., Berger, G. and Briggs, A. (Eds), *Problems of Teaching and Research in Universities*, OECD/CERI, Paris, pp. 23-76.
- Biagioli, M. (1990), “The anthropology of incommensurability”, *Studies in History and Philosophy of Science*, Vol. 21 No. 2, pp. 183-209.
- Boisot, M. (1998), *Knowledge Assets. Securing Competitive Advantage in the Information Economy*, Oxford University Press, Oxford.
- Boon, L., Gottschal, P., Harbers, H., Otten, R. and de Vries, G. (1991), “Wetenschapsontwikkeling en kundes”, *Kennis en Methode*, Vol. 2, pp. 150-73.
- Bossard, J.H.S. and Dewhurst, J.F. (1931), *University Education for Business: A Study of Existing Needs and Practices*, University of Philadelphia Press, Philadelphia, PA.
- Burrell, G. and Morgan, G. (1979), *Sociological Paradigms and Organizational Analysis*, Heinemann Educational Books, London.
- Campbell, D.T. (1969), “Ethnocentrism of disciplines and the fish-scale model of omniscience”, in Sherif, M. and Sherif, C.W. (Eds), *Interdisciplinary Relationships in the Social Sciences*, Aldine Publishing, Chicago, IL, pp. 328-49.
- Cheit, E.F. (1991), “The shaping of business management thought”, in Easton, D. and Saposs Schelling, C. (Eds), *Divided Knowledge: Across Disciplines, across Cultures*, Sage, Newbury Park, CA, pp. 195-219.
- Clark, B.R. (1983), *The Higher Education System: Academic Organization in Cross-national Perspective*, University of California Press, Berkeley, CA.

-
- Cyert, R. and March, J.M. (1963), *A Behavioral Theory of the Firm*, Blackwell, Oxford, (2nd ed. published in 1992).
- De Vries, J. (1985), *Geschiedenis der Accountancy in Nederland. Aanvang en Ontplooiing, 1895-1935*, Van Gorcum, Assen and Maastricht.
- Dewey, J. (1938), *Experience and Education*, Collier Books, New York, NY.
- De Wilde, R. (1992), *Discipline en legende. De identiteit van de sociologie in Duitsland en de Verenigde Staten 1870-1930*, Van Gennep, Amsterdam.
- Donaldson, L. (1995), *American Anti-Management Theories of Organization: A Critique of Paradigm Proliferation*, Cambridge University Press, Cambridge.
- Donham, W.H. (1933), "The failure of business leadership and the responsibility of the university", *Harvard Business Review*, Vol. XI No. 11, pp. 418-35.
- Gass, J.R. (1972), "Preface", in Apostel, L., Berger, G. and Briggs, A. (Eds), *Interdisciplinarity. Problems of Teaching and Research in Universities*, OECD/CERI, Paris.
- Giddens, A. (1990), *The Consequences of Modernity*, edition 2000, Polity Press, Cambridge and Oxford.
- Gieryn, T.F. (1983), "Boundary-work and the demarcation of science from non-science", *American Sociological Review*, Vol. 48 No. 6, pp. 781-95.
- Gourvish, G. and Tiratsoo, N. (1998), "Missionaries and managers: an introduction", in Gourvish, G. and Tiratsoo, N. (Eds), *Missionaries and Managers: American Influences on European Management Education, 1945-60*, Manchester University Press, Manchester, pp. 1-12.
- Grant, G. and Riesman, D. (1968), *The Perpetual Dream. Reform and Experiment in the American College*, University of Chicago Press, Chicago, IL.
- Gusdorf, G. (1977), "Past, present and future in interdisciplinary research", *International Social Sciences Journal*, Vol. 29 No. 4, pp. 580-600.
- Klein, T.J. (1985), "The interdisciplinarity concept: past, present and future", in Levin, L. and Lind, I. (Eds), *Re-Assessing the Concept in the Light of Institutional Experience*, OECD/CERI, Stockholm, pp. 104-36.
- Klein, T.J. (1990), *Interdisciplinarity. History, Theory, and Practice*, Wayne State University Press, Detroit, MI.
- Klein, T.J. (1996), *Crossing Boundaries. Knowledge, Disciplinarity, and Interdisciplinarity*, University Press of Virginia, Charlottesville, VA and London.
- Knights, D. and Willmott, H. (1997), "The hype and hope of interdisciplinary management studies", *British Journal of Management*, Vol. 8 No. 1, pp. 9-22.
- Kockelmans, J.J. (1979), *Why Interdisciplinarity? Interdisciplinarity and Higher Education*, The Pennsylvania State University Press, University Park, PA and London, pp. 123-58.
- Kohler, R.E. (1982), *From Medical Chemistry to Biochemistry: The Making of a Biomedical Discipline*, Cambridge University Press, Cambridge.
- Koontz, H. (1961), "The management theory jungle", *Academy of Management Journal*, Vol. 4 No. 3, pp. 174-88.
- Leavitt, H.J. (1989), "Education our MBAs: on teaching. what we haven't taught our MBAs", *California Management Review*, Vol. 31 No. 3, pp. 38-50.
- Locke, R.R. (1984), *The End of Practical Man: Entrepreneurship and Higher Education in Germany, France and Great Britain, 1880-1940*, JAI Press, Greenwich, CT.
- Locke, R.R. (1989), *Management and Higher Education since 1940: The Influence of America and Japan on West Germany, Great Britain, and France*, Cambridge University Press, Cambridge.

- Lynton, E.A. (1985), "Interdisciplinarity: rationales and criteria of assessment", in Levin, L. and Lind, I. (Eds), *Interdisciplinarity Revisited: Re-assessing the Concept in the Light of Institutional Experience*, OECD/CERI, Stockholm, pp. 137-52.
- Meij, L.J. (1962), "Management, a common province of different sciences", *Management International*, Vol. 2 No. 5, pp. 37-46.
- Meij, J.L. (1965), "Management, a common province of different sciences", in Bouma, J.L. and Willems, H. (Eds), *Bedrijfseconomische Verkenningen. Opgedragen aan professor doctor Jacob Louis Meij*, Delwel, Den Haag, pp. 52-65.
- Murray, Th. (1983), "Partial knowledge", in Callahan, D. and Jennings, B. (Eds), *Ethics, the Social Sciences, and Policy Analysis*, Plenum, New York, NY, pp. 305-31.
- OECD (1972), *Interdisciplinarity – Problems of Teaching and Research in Universities*, OECD, Paris.
- Organization (2003), "Editorial, why neo-disciplinary? Why now?", *Organization*, Vol. 10 No. 3, pp. 403-20.
- Pfeffer, J. (1993), "Barriers to the advance of organizational science: paradigm development as a dependent variable", *Academy of Management Review*, Vol. 18 No. 4, pp. 599-620.
- Pierson, F.C. (1959), *The Education of American Businessmen. A Study of University-College Programs in Business Administration*, McGraw-Hill, New York, NY.
- Porter, L.W. and McKibbin, L.E. (1988), *Management Education and Development: Drift or Thrust into the 21st Century?*, McGraw-Hill, New York, NY.
- Regtering, H. (1983), "Interdisciplinariteit over de grens – over de grens van interdisciplinariteit", working paper, Sociologisch Instituut, Nijmegen.
- Ringer, F.K. (1979), *Education and Society in Modern Europe*, Indiana University Press, Bloomington, IN and London.
- Sass, S.A. (1982), *The Pragmatic Imagination. A History of the Wharton School 1881-1981*, University of Pennsylvania Press, Philadelphia, PA.
- Schön, D.A. (1983), *The Reflective Practitioner: How Professionals Think in Action*, Basic Books, New York, NY.
- Selander, S. (1990), "Associative strategies in the process of professionalization: professional strategies and scientification of occupations", in Burrage, M. and Torstendahl, R. (Eds), *Professions in Theory and History: Rethinking the Study of the Professions*, Sage, London, Newbury Park, CA and New Dehli, pp. 139-51.
- Shimbori, M. (1985), "Interdisciplinarity resisted", in Levin, L. and Lind, I. (Eds), *Interdisciplinarity Revisited: Re-assessing the Concept in the Light of Institutional Experience*, OECD/CERI, Stockholm, pp. 168-80.
- Simon, H.A. (1947), *Administrative Behavior: A Study of Decision-Making Processes in Administrative Organizations*, 4th ed., The Free Press, New York, NY.
- Simon, H.A. (1955), "A behavioral model of rational choice", *Quarterly Journal of Economics*, Vol. 69 No. 1, pp. 99-188.
- Simon, H.A. and March, J.G. (1958), *Organizations*, Wiley, New York, NY.
- Stichweh, R. (1998), "Systems theory and the evolution of science", in Altmann, G. and Koch, W. (Eds), *Systems: New Paradigms for the Human Sciences*, De Gruyter, Berlin, pp. 303-17.
- Volberda, H. and Elfring, T. (2001), *Rethinking Strategy*, Sage, London.
- van Baalen, P.J. (1995), *Management en Hoger Onderwijs. De geschiedenis van het academisch management-onderwijs in Nederland*, Eburon, Delft.

-
- van Baalen, P.J. (1996), *Entrepreneurs in Higher Education: A Short History of the European and Dutch Movement of Management Education*, Eburon, Delft.
- van Baalen, P.J. and Leijnse, F. (1995), "Beyond the discipline: inserting interdisciplinarity in business and management education", in van Baalen, P.J. (Ed.), *New Challenges for the Business School*, Eburon, Delft, pp. 7-25.
- Wagner, P. and Wittrock, B. (1991a), "Analyzing social science: on the possibility a sociology of the social sciences", in Wagner, P.W., Wittrock, B. and Whitley, R. (Eds), *Discourses on Society. The Shaping of the Social Sciences Disciplines. A Sociology of the Sciences*, Kluwer Academic Publishers, Dordrecht, Boston, MA and London, pp. 3-22.
- Whitley, R. (1988), "The management sciences and managerial skills", *Organization Studies*, Vol. 9 No. 1, pp. 47-68.
- Willmott, H. (1994), "Management education: provocations to a debate", *Management Learning*, Vol. 25 No. 1, pp. 105-36.

Further reading

- Byrne, L. (1940), "An educational application of resources of the unity of science movement", *Philosophy of Science*, Vol. 7 No. 2, pp. 241-62.
- Channell, D.F. (1991), *The Vital Machine: A Study of Technology and Organic Life*, Oxford University Press, Oxford.
- Harrington, A. (1996), *Re-enchanted Science: Holism in German culture from Wilhelm II to Hitler*, Princeton University Press, Princeton, NJ.
- Johnson, P. and Duberly, J. (2000), *Understanding Management Research*, Sage, London.
- Koontz, H. (1980), "The management theory jungle revisited", *Academy of Management Review*, Vol. 5 No. 5, pp. 175-87.
- Light, D.W. (1983), "The development of professional schools", in Jarausch, K. (Ed.), *The Transformation of Higher Learning, 1860-1930*, University of Chicago Press, Chicago, IL, pp. 345-67.
- van Baalen, P. and Moratis, L. (2004), "From going alone to going along: European business schools as loosely coupled networks", in Wankel, C. and DeFillippi, R. (Eds), *The Cutting Edge of International Management Education*, IAP, Hamden, CT, pp. 3-36.
- von Bertalanffy, L. (1950), "An outline of general system theory", *The British Journal for the Philosophy of Science*, Vol. 1 No. 2, pp. 134-65.
- Wagner, P. and Wittrock, B. (1991b), "States, institutions, and discourses: a comparative perspective on the structuration of the social sciences", in Wagner, P.W., Wittrock, B. and Whitley, R. (Eds), *Discourses on Society. The Shaping of the Social Sciences Disciplines. A Sociology of the Sciences*, Kluwer Academic Publishers, Dordrecht, Boston, MA and London, pp. 331-57.

Corresponding author

Peter van Baalen can be contacted at: pbaalen@rsm.nl