

# **Herbert A. Simon on What Ails Business Schools: More Than ‘A Problem in Organizational Design**

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## **Abstract**

We critically examine Herbert Simon's 1967 essay, *The Business School a Problem in Organizational Design*. We consider this essay within the context of Simon's key ideas about organizations, particularly those closely associated with the 'Carnegie perspective' on organizations and how they influenced the reinvention of American business schools in the post-WW2 era and were deeply influenced by the post-War context and also were appropriated by the Ford and Carnegie Foundation to reform business school teaching and research. We argue that management educators misappropriated Simon's concept of an intellectually robust and relevant research and educational agenda for business schools that has in part contributed to the intellectual stasis that now characterizes business education research and its capacity to inform management practice.

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As scholars of the US business school (Khurana 2007; Spender 2007) we must eventually evaluate Herbert Simon's contributions to our schools' current structure and process versus his contributions to the disciplinary material our educators actually teach. We find, of course, his contributions to both were enormous. A man of huge intellect, imagination and energy, Simon was not only extremely knowledgeable in his first field - political science - but at home in a wide variety of disciplines and languages (Augier and March 2004; Crowther-Heyck 2005). But in spite of his giant reputation in political science, economics, organizational theory, computer science, and psychology, plus his Nobel Prize in Economics, his National Medal of Science and his A. M. Turing Award, one dimension of his work is often overlooked: his role in the creation of the contemporary business school (see Augier and Prietula 2007 for an exception). This is not just a historical matter, for any analysis must consider the way his role meshed with his life-long critique of the rationalism that has become management education's overarching, and now much criticized, paradigm. While Simon wrote on learning, and on theoretical and experimental cognitive psychology, he also wrote about education *per se* (e.g. Simon 1985; Anderson, Reder et al. 1998; Simon 2002). Famously, he also wrote about the business school as 'a problem in organization design' (Simon 1967) and we consider this paper in some detail because it contains the key to Simon's educational theorizing.

In addition to his early reading of Dewey and others, Simon's ideas about education were shaped by his experiences at the University of Chicago, the Illinois Institute of Technology (IIT) and, most significantly, by his helping establish the Graduate School of Industrial Administration (GSIA) - renamed the Tepper School of Business in 2003 - part

of what is now Carnegie Mellon University (CMU). Our hope with this paper is to shed further light on the current social ecology of management education by describing the historical, intellectual, political, and business context in which GSIA was formed. The recent criticisms of business school activity, and the various recommendations (e.g. Starkey, Hatchuel et al. 2004; Durand and Dameron 2008; Datar, Garvin et al. 2010) make this analysis ever more urgent. We also consider how some of Simon's key ideas - as the GSIA faculty member most closely associated with the 'Carnegie perspective' on organizations and a major intellectual architect of its research model - profoundly influenced the reinvention of American business schools in the post-WW2 era. We argue that the Ford and Carnegie Foundation-funded diffusion of the GSIA model eventually subverted Simon's concept of an intellectually robust and relevant research and educational agenda for business schools. We draw attention to this under-appreciated subversion in part to help frame the current criticisms, with their implied critique of the GSIA-based dominant model, and in part to suggest that Simon's own unrealized and ignored vision of management education still offers us a practical way out of the intellectual dead-end at which business schools seem to have arrived. While the recommendation literature cited above does little to illuminate this impasse, an analysis of Simon's 1967 paper does. Reconsideration seems especially timely given that our society appears to be in urgent need of fresh ideas and leadership from its business leaders.

Carnegie Mellon University was formed in 1967 by the merger of Carnegie Tech (as the Carnegie Institute of Technology was then generally known) and the Mellon Institute,

also located in Pittsburgh. Previously, in 1949, William Larimer Mellon, offering a gift of \$6 million from the William L. and Mary T. Mellon Foundation, persuaded the Trustees of Carnegie Tech to create a graduate school of industrial administration (Fenton 2000). As GSIA's founding members, Simon and his colleagues - especially Lee Bach, GSIA's first Dean - played a major role in the radical reinvention of business education after WW2. Bach, an economist, arrived at Carnegie Tech in 1947 and one of his first GSIA hires - in 1949 - was Herbert A. Simon (Bach 1958; Bach 1986). Simon was 33 years old, already a nationally visible star who had been made full professor at IIT. He was not overly quick to accept the GSIA offer, holding out for a substantial salary plus appointment as Head of the Department of Industrial Administration, one of GSIA's only two departments (Simon 1991:136; Crowther-Heyck 2005: 140; Crowther-Heyck 2006). But then, rapidly, as a result of the combined intellectual, administrative and promotional efforts of Bach and Simon and their colleagues Cooper, March, Holt, Modigliani, Cyert and Newell (Fenton 2000:155) GSIA's reputation and influence shot upwards. It also became the intellectual and methodological template for the Ford Foundation in its influential moves to press business schools nation-wide to upgrade the quality of their management education and research activities in the 1950s and 60s (Khurana 2007; Pooley and Solovey 2010). These moves contributed significantly to the current dominance of discipline-based faculty and quantitatively oriented research and shaped doctoral training in business schools all over the world. Ironically, they also led to the adoption of neoclassical microeconomics as business education's basic thought-system, a result that was instrumental in undermining Simon's own contributions to understanding business organizations and his plan, clearly spelt out in the 1967 paper mentioned already,

to create a professional management education fashioned towards the practical challenges of the modern business world.

Business schools, like any social institution, are by-products of their circumstances, and their rationales and strategies can never be entirely disentangled from their time, place, history, society, and culture (Stinchcombe 1965; Johnson 2007). Indeed researchers have found that the conditions in which organizations are founded impose a persisting influence on their character, one that remains long after the conditions that gave rise to it have disappeared - often rendering the organization increasingly ill-adapted to its actual environment as time goes by (Hannan and Freeman 1989; Baum and Oliver 1996). The approaches and practices developed and institutionalized at GSIA were intended to lead to a management-oriented body of research that would enable business schools and the business leaders they educated address the major problems confronting the post-WW2 socio-economy. At that time most business academics believed these problems were largely technical and that the application of rigorous scientific methods would lead towards their solution. Committed to this kind of 'modernism', business schools saddled themselves with a research model that emphasized narrowness of scope as well as methodological rigor. But our history suggests that while this model clearly led to an explosion of management research literature and PhDs, it has produced little in the way of insights about the real dilemmas facing business managers - indeed little that practicing managers see as at all relevant to their problems, so reinforcing our sense of being in a world abounding in technical expertise but sadly bereft of enlightened

leadership (Leavitt 1987; Hambrick 1994; Mintzberg 2004; Bennis and O'Toole 2005; Khurana and Marquis 2006; Polzer, Gulati et al. 2009).

Tracing the influence of Simon and his GSIA colleagues on contemporary business education - an influence that, as if to demonstrate a key finding of Simon's own theory of organization, often operated in ways unintended by Simon himself - we have divided our paper into four sections. The first section considers the post-WW2 context within which the contemporary business school emerged. Then, the second section discusses the origins of GSIA and highlights the key elements of the school's program and perspective. We discuss the vision that Simon and GSIA's other founders had for their school as well as outline some of Simon's foundational ideas about the 'Carnegie perspective' on organizations. We examine how GSIA became the prototype for US business education and how the Ford and Carnegie Foundations helped diffuse this model to other business schools, both domestic and international. In the third section we review Simon's theory of organizations and his experiences at GSIA, and the business education prescriptions he derived from them. In the fourth and final section, we consider the consequences the academic shifts catalyzed by GSIA had for contemporary business schools, and, especially, for their doctoral programs. In the end we argue that the Carnegie perspective has run its course, especially given the challenges now facing business schools and the society we presume they were founded to serve. But we conclude that Simon's thinking about business schools' structure, faculties, programs, and research still holds important possibilities for business education.

## THE POSTWAR CONTEXT

Prior to the Second World War (WW2), business education - part of the US university system only since 1881, when the Wharton School was founded at the University of Pennsylvania - was highly fragmented and lacked academic coherence and what passed for research showed little evidence of scientific rigor. In this respect the turn-of-the-century US business schools were merely another part of a national system of higher education that, in spite of the recent establishment of institutions modeled on the German research university such as Johns Hopkins and the University of Chicago, could not compete with the European system in terms of research productivity or the quality of academic training (James 1898; Jones 1913; Light 1983; Graham and Diamond 1997; Engwall and Zamagni 1998; Clark 2006).

WW2 led to massive changes in American research universities. The prewar system that relied on *ad hoc* private funding was recognized as inadequate to the postwar challenge. Before WW2 the federal government sponsored little scientific research. But during the war, government poured vast funds into the leading research universities such as Harvard, MIT, Chicago, and Berkeley. Federal involvement in, for instance, the development of radar, the atom bomb, and the biotechnology necessary to produce large amounts of penicillin for wartime operations, convinced most policy makers and politicians that government had a crucial role to play in supporting a postwar research, particularly given how advances in both the natural and social sciences seemed key to meeting the prevailing Cold War challenges (Bush 1945; Backhouse and Fontaine 2010). The government created a host of agencies to channel research funds into the natural sciences

and their application - e.g. the National Science Foundation, the Atomic Energy Commission (later incorporated into the Department of Energy), and the National Institutes of Health. While it directed most of its financial resources to the life and physical sciences, philanthropic foundations such as the Rockefeller, Carnegie, and Ford Foundations - sensing the political and cultural challenges of the Cold War - directed much of their attention to the social sciences (Pooley and Solovey 2010).

High-level interest in the social sciences was not new. During the late 1920s and the 1930s, the Rockefeller and Carnegie Foundations and the Cowles Commission, for example, had been involved in helping structure and fund social science research and legitimate social science departments, which lacked prestige in comparison with their counterparts in the natural sciences (Lagemann 1987). Following the war, a new sense of urgency gripped their leaders and trustees as, confronting Cold War threats, they sought to take advantage of the wartime interdisciplinary collaborations, and the methodological and technical advances they produced, and aimed to mobilize them to raise the scientific respectability of the social sciences.

That the social sciences as something that could be harnessed to national aims, just as the natural sciences had been, and so put on the same plane as the natural sciences, held particular appeal. According to the emerging narrative, the social sciences would be as objective and apolitical as the natural sciences were so long as they were deployed by an inquiring but rational mind. In practice, rationality meant quantification and statistics, since these had become the method for certifying a finding as objective knowledge versus

the noxious subjective product of ideology (Porter 1995). Combined with peer review, the quantification of social science findings would give them the mark of scientific respectability. Postwar advocates of this emerging paradigm also connected rigorous scientific research to advancing democracy, with the scientific community seen as exemplars of the ideals of freedom of association and meritocracy, and indeed, representative of American virtue *par excellence*.

This line of thinking led naturally to the conclusion that social science research rather than a closer attachment to management practice was what was needed to correct the poor academic quality of American business schools, thereby strengthening management as a key institution in the struggle against communism. Despite rising enrollments and a dramatic growth in the number of business schools as a consequence of the 'GI Bill' (the Servicemen's Readjustment Act of 1944), foundation leaders found plenty of justification for business education's low academic status. For one thing, the fundamental material of business education remained unsettled: the business schools at Columbia and the University of Michigan, for example, still offered classes in secretarial science, elementary bookkeeping, and other routine office work procedures (Daniel 1998). Other studies suggested students entering graduate business schools were not as qualified, academically, as those going into other fields of study. Few schools even screened their applicants or imposed rigorous standards for graduation (Gordon and Howell 1959; Pierson 1959).

Most importantly, from the postwar perspective, the small amount of research actually being undertaken by business school faculty had little scientific validity. After interviewing scores of business school academics, Berkeley economist Robert Gordon noted he would “be surprised if five percent of the faculty members in graduate school business school programs could provide a reasonably coherent account of basic research methodology (of the relationship between theory development and empirical investigation, hypothesis formulation and careful measurement and testing through observation)” (Gordon 1958). Wheeler noted that at Stanford’s Graduate School of Business in the early 1950s, research output was not considered in faculty promotion and tenure decisions and “[m]ost faculty devoted their surplus time to consulting” (Wheeler 1965). Fritz Roethlisberger observed that doctoral training for future business school academics consisted of candidates spending

“... most of their time collecting cases as research assistants for particular professors. After a few years of training in case research (as it was understood by the professor for whom they worked), they often collected a half dozen or more cases of their own about some particular problem or topic. They added a final chapter about the administrative implications of the case, and this constituted a thesis. Thus a graduate of the early program usually had training in only one method of research and one method of teaching. If he wanted to go into teaching as a career, he had to stay at the school or go to one which used the same methods” (Roethlisberger 1977, p. 287).

In short American business education consisted of a group of “unimaginative, non-theoretical faculties teaching from descriptive, practice-oriented texts to classes of second-rate, vocationally-minded students.” (Howell, 1962, p. 76).

The idea that what most ailed business schools was the poor training and quality of the faculty quickly gained currency. Wartime experience had shown that the quantitative disciplines, and the emergent, multidisciplinary behavioral sciences, were often key to examining real decision-making. So, for many of the Foundation leaders interested in improving postwar business education, importing these concepts and technology into business schools was the obvious corrective. The Carnegie Corporation and a newly expanded Ford Foundation sought to mobilize the ‘revolution in the behavioral sciences’ and bring it to bear on management education, especially to enable business schools to meet the challenges of the Cold War (Pooley and Solovey 2010). The social and ideological context of the Cold War suggested American business had not only to demonstrate an ability to produce material gains for the United States but also showcase the moral superiority of the American way of producing and consuming non-military goods and services.

While the US’s entry into WW2 probably ended the Depression, the convergent postwar fears of a recession and communism convinced the governing elite that maintaining democracy depended on avoiding another depression, along with the accompanying social unrest that would likely occur. Meanwhile, a cadre of economists and other social

scientists found the notion of 'rational choice' and the OR concepts and techniques developed during WW2 to be a viable approach to management too, one that would be driven by objective data rather than by ideological or personal idiosyncrasy. The belief that these techniques could be used to improve the performance of business firms drew, in turn, on the success of the American war effort. As the political scientist Sheldon Wolin and others noted, the technology and logistics that were instrumental to the Allied victory seemed to clarify what was possible when large organizations relied on rigorous planning and bureaucratic coordination (Wolin 2004; Bottom 2009).

The appeal of a more rational and scientific approach to managing was further reinforced by the changing nature of the corporation and the tremendous rise in its status in the postwar era (Chandler 1977). The organizational society that emerged after WW2 - the Hayekian Cold War ideology notwithstanding - was closer to a bureaucratized and centrally planned economy than to one made up of entrepreneurs and small businesses. Following the Depression and the industrial mobilization of WW2, it was rare to hear of the modern corporation as 'privately' owned in the sense that its shareholders were autonomous and unconstrained as they deployed their corporation's assets. Clearly US society committed itself to an economy driven by large, complex corporations in which the tasks of coordination and governance were shared among government, unions, shareholders, and, most crucially, management, in a system labeled 'relationship capitalism' (Rajan and Zingales 2004). Large-scale corporations became the primary guardians of the nation's economic welfare and the main support for America's system of democratic capitalism.

Other factors contributed to the belief that rational approaches would be crucial to managing corporate enterprises in the postwar era. For example, the rise of the conglomerate form of corporate organization seemed to lessen the importance of industry-specific knowledge gained from long exposure and experience, and put a premium on more abstract skills such as forecasting, planning, decision-making, and coordination (Chandler 1977; Fligstein 1990). The key to maximizing corporate performance, many argued, was an ever more rational arrangement of organizations themselves, which called for a clearer definition of an organization's functions and the articulation and definition of roles and authority within it (Guillén 1994). The key to realizing this vision, in turn, was a cadre of management educated to understand and apply modern organizational science. By the early 1950s both the federal government and the major philanthropic institutions saw the new science-based training of managers as an important mechanism via which America would be able to meet its postwar moral obligations and economic goals. In this commercial, scientific and political context Carnegie's GSIA made its enduring mark on business education.

### **CREATING GSIA AND THE CONTEMPORARY BUSINESS SCHOOL**

Between 1948 and 1961 GSIA became the principal locus of an intellectual and institutional revolution that would dramatically reshape business education. Rationality was the new watchword and the founding and early history of GSIA demonstrated how the postwar historical context, combined with the increasingly successful claims to legitimacy being advanced by social scientists, fueled the adoption of scientific

approaches to decision-making and management. GSIA would play a fundamental role in this, recasting the founding vision of the American business school. Initially grounded in notions of personal leadership, the liberal arts and the human relations perspective that emerged during the 1930s, management education would finally be placed on a rational, scientific, and quantitative foundation.

Lee Bach was key to introducing the new paradigm at GSIA. Like Simon, a graduate of the top-flight University of Chicago economics department, Bach had served as an economic advisor to the US Navy during the war. He joined Carnegie Tech in 1947 with the promise he could set up a doctoral program but was soon appointed instead as GSIA's founding Dean (Fenton 2000: 144). After spending a year visiting various business schools, he concluded existing programs tended either to over-emphasize microeconomics, which had little to do with training effective managers, or they offered a practitioner-based 'how to' describing the prevailing practices of leading firms. Neither did anything to foster either innovative academic thinking or significant advances in management practice. Bach convinced W. L. Mellon, who remained involved with his initiative, that GSIA should depart radically from existing business school practice. Neither Bach nor his fellow architects of the GSIA program wanted to ape the a-theoretical and descriptive approach of the typical business school. Harvard's business school (HBS), of course, had adopted case studies as the primary mode of business school research and teaching, a pedagogy that many others followed as a consequence of HBS's enormous influence during the 1920s and 1930s (McNair and Hersum 1954; Copeland 1958). Simon, especially critical, described such thinking and research as beset

with simplicities that obscure fundamental ambiguities of organizational life and administrative decision making (Simon 1997). But Bach and Simon also reacted against the neoliberal rational choice economic perspective towards firms and human behavior that had begun to take over microeconomics generally (Amadae 2003). Both men criticized economists, especially those working in business schools, for having “made almost a positive virtue of avoiding direct, systematic observations of individual human beings while valuing the casual empiricism of the economist’s armchair introspection” (Gabor, 2000, p.97).

Meanwhile, the postwar context and its associated innovations had a direct impact on the curricular and research agenda of GSIA, whose founders, as this 1952 brochure about the school reveals, viewed the school’s purpose very much in Cold War terms:

“The present way of life in America rests heavily on the contributions American business leaders and engineers, working as part of a free, integrated society, have made during many decades. The future of this way of life will depend in large part on the men who rise in industry during the years ahead and on their capacities for efficient operations and broad-gauged leadership. It is men of these ultimate potentialities that the School seeks to train.” (Carnegie Institute of Technology Graduate School of Industrial Administration 1952).

Along with other postwar institutions such as the RAND Corporation and the Cowles Foundation (founded in the 1930s as the Cowles Commission for Research in Economics and reorganized as the present-day foundation in 1955), GSIA was one of the hubs of the

emerging political-academic-military-industrial complex against which the departing President Eisenhower warned. Unlike existing business schools that often focused on preparation for specific functions and industries, the GSIA curriculum emphasized teaching the students fundamental skills and analytics via a focus on problem-solving and direct exposure to the faculty's research. The human relations model of managing, prevalent in business schools amid the industrial discord and anti-corporate sentiment of the 1930s, emphasized improved relationships between management and workers, conceptualizing workers as motivated by sentiment and emotion rather than merely by pecuniary rewards. Management effectiveness then depended on interpersonal skills rather than on rational analysis and cash incentives (Mayo 1933; Roethlisberger 1977). The postwar perspective, in contrast, emphasized organizational rationality and interests. The organization was no longer viewed as a complex and dynamic social system but as a technology or an instrument, with its managers as technicians, designers and operatives rather than as social or psychological mediators. Now it was the technological complexity of organizations that needed to be understood and managed better, not the dehumanizing effects of bureaucracy. Management's re-defined role was to administer effectively through rigorous goal-driven long-range planning, logical diagnosis of organizational problems, identification of feasible solutions, and rational action choices in the light of factually established constraints.

The implications of this new conception of management for business education, in turn, were well described by Simon as he wrote about the impact on the thinking of the academics at GSIA of the innovations in decision theory developed during WW2:

“WW2 had spawned something called ‘operational analysis or ‘operations research’, the use of quantitative tools for managerial problem solving and decision-making. Just after the war, a number of people were seeking to transfer these tools to peacetime industrial applications, and new tools (such as linear programming) were being discovered.

At the same time, the behavioral sciences were flourishing and were being brought to bear on issues in organization and management ... The postwar flowering of management science and of the behavioral approach to organization theory provided the substance of applied science we needed” (Simon, 1991, p. 139).

The GSIA model - which would eventually be diffused with the help of millions of Ford Foundation dollars as incentives to educational institutions - called for greater disciplinary rigor, greater emphasis on quantitative research among faculty, a more rigorous selection of students, and systematic training for faculty and students in the foundational disciplines of psychology, sociology, economics, and statistics. To realize this alternative model, Bach needed a different type of faculty member than had historically been attracted to business schools. Describing the qualifications for his new school’s faculty, Bach stated:

“We wanted a block of faculty members to provide the disciplinary foundations to the applied fields to business. For this group, we preferred people from the disciplines (economics, political science, the behavioral sciences, operations research) and the quantitative methods (mathematics, computers, statistics, accounting)” (1983).

Many of the faculty he recruited had extensive exposure to the managerial techniques developed for mobilizing industry for the war. Bach would find his totemic faculty member in Simon, as adept in economics, psychology, sociology, and mathematics as he was in his home discipline of political science (Bach 1986).

Lee Bach, Herbert Simon, and Bill Cooper ‘came out of the liberal arts culture’ (Simon 1991:159). Along with many of their GSIA colleagues, they came of age during the Depression and combined with the intellectual ferment of the postwar era they were able to endow GSIA and its participants with a shared socio-political outlook, one that fused a sense of the failure of the social sciences to address the causes of the Depression with a new faith in the technical and theoretical advances achieved during WW2. They embodied a positivistic and scientific spirit that caused them to believe that, by applying the discipline and laws of science to organizations, they could build a management science the way others engineered a bridge. Notwithstanding the potential of these insights, Carnegie’s GSIA program might have remained a mere curiosity in business school history had it not been for the Ford Foundation and Carnegie Corporation’s highly critical reports on business education, both published in 1959. While both reports, which Bach had a hand in creating, concentrated on the poor condition of business education

and made similar criticisms, the Ford report is of particular relevance because of its extended commitment not only to criticize the state of business education but also to support the implementation of its suggested reforms by using GSIA as its exemplar.

In a revamping of its mission and programs commencing in 1948, the Ford Foundation adopted the emerging Cold War belief that the frontier of social science lay in integrating a variety of social science and technical disciplines, particularly economics, social psychology, cognitive psychology, decision theory, and the emerging computer sciences (Pooley and Solovey 2010). The emphasis was on moving business school research away from what Bach described as ‘trailing a few steps behind the operating business world’ towards making basic research the foundation of business schools. The Ford Foundation pushed this vision by providing more than \$35 million to the major business schools to retrain their faculty, to recruit new discipline-oriented faculty, and to reshape their doctoral programs significantly as the principal source of a new generation of teachers without management experience but credentialed in the new analytic skills, changes aimed at shifting business school faculty and research toward a behavioral science that was grounded ‘upon the scientific approach to problem solution.’ (Report of the Study of the Ford Foundation, 1951).

Although the main purpose of these Ford Foundation reforms was to improve the overall intellectual quality of business education by giving it a broad-based grounding in the social sciences and quantitative disciplines and methods, in practice it allowed the discipline of economics to dominate the post-Ford-intervention business school. Part of

this was a reflection of economics' highly developed sense of rigor. But part was also serendipitous; a new federal mandate that the government regularly collect data for economic decision-making tilted a disproportionate amount of research spending towards economics, particularly as the government encouraged its own economists to adopt research methods and policy analyses that took more advantage of computers.

Additionally, with their emphasis on game theory and decision theory, economists - whose numbers were increasing in government, private think tanks, and academe - found themselves, comparatively speaking, to be the favored children of the quantitative shift in social sciences.

Finally, with a revitalized macroeconomics built on Keynesian theory, Kuznets's new national income accounting concepts in hand, and the publication of Samuelson's economics textbook (which quickly became the standard in undergraduate and graduate courses), economics claimed to be one of the few social sciences with a discernible methodology and rigorous theory (Bernstein 2001; Fourcade 2009). In the shadow of these developments and the uptake of the neoliberal micro economic concepts of the firm and its management now being taught in business schools, Simon elaborated a personal critique of this perspective, ideas that would lead him to retreat from his earlier engagement with economics and to work on his own model of business education.

### **SIMON ON ORGANIZATIONS AND BUSINESS EDUCATION**

The Nobel prize-winning economist Oliver Williamson studied under Simon while doing his PhD at Carnegie Mellon and later described his advisor as a 'Carnegie-triple' -

someone who was disciplined, interdisciplinary, and had an active mind (Williamson 2004:280). As an undergraduate and graduate student from the University of Chicago, Simon was part of the group James March described as “united by a general belief that rational coordination (by large organizations, public and private) is necessary for an effective democracy” (Augier and March 2001). A self-proclaimed New Dealer (Simon 1991:50; Crowther-Heyck 2005:87; Crowther-Heyck 2006), Simon was politically and personally committed to understanding the administrative/organizational/planning needs of democracy, believing that an effective theory of organizations and management would help create a healthy democratic capitalist system (Augier and March, 2001, *p.* 396).

Simon observed that even though complex organizations had been around for millennia, business education had made little progress toward developing a ‘true’ administrative science. The principal reason, he felt, was that business school scholars had not made full use of the tools and insights developed across the social and natural sciences. With Barnard’s multi-system approach in his background Simon - along with some of his GSIA colleagues - believed an interdisciplinary approach was the key to developing a general theory of organizations. They felt that given each discipline’s ‘bounded rationality’, the choice of axioms and simplifications that structured its own grasp of reality, it made no sense to prioritize any single science as a foundational discipline to the vast complexity of human organizations. In fact a single-discipline approach would obviously lead to unrealistic and even outlandish conclusions about the nature of organizations, eventually leading to theories that were not just harmless oversimplifications but radically consequential misrepresentations of organizational

reality. For Simon and his GSIA colleagues, economics, as evidenced by its evident failure to explain the Great Depression and its immature concern with theoretical trivia at times of national need, was Exhibit 1 for the sorts of dangers inherent in disciplinary isolation and the lack of intellectual engagement with issues concerning real people (Augier, March et al. 2002).

Simon's views on the nature of organizations and the subsequent 'Carnegie perspective' on organizations reflected both his broad disciplinary knowledge and his interdisciplinary commitment. He worked from four foundational premises that synthesized insights from political science, psychology, economics, and sociology, respectively. First, that organizations are complex entities made up of a diverse set of interests and held together by a variety of 'deals' and coalitions. Second, managers cannot ever be fully aware of their possible actions and or of the ultimate consequences of their decisions. Indeed, it is often the unintended consequences of decisions that organizations confront that lead to a new generation of organizational problems. Third, while the individuals who comprise organizations are 'intendedly rational', most 'satisfice' by making choices that are 'good enough' for the problem they are trying to solve. Fourth, and related to satisficing, most organizational behavior is driven by habit and routine rather than rational calculation.

In "The Business School: A Problem in Organizational Design" (1967) Simon - drawing on his theorizing about organizations, his GSIA experiences, and on what he believed to be the relevant models of professional schools of medicine and engineering - discussed what he viewed as the central challenge for business schools as for all professional

schools: integrating knowledge from ‘the world of practice’ with that from the many sciences that are relevant to and contribute to the improvement of professional practice. “In one-to-one correspondence with the two main bodies of information and skill the professional school needs to know, are two sets of social systems that possess the knowledge: the social system of practitioners, on the one hand, and the social systems of scientists in the relevant disciplines, on the other”(Simon 1967:3). The problem of designing a business school, Simon argued, is to find ways to integrate disparate bodies of knowledge that are not easily brought together into a fruitful relationship. His analysis of this problem and his proposals for how business schools might solve it grew out of his approach to the complexity of organizations and the difficulty of integrating distinctive realms of knowledge via a truly interdisciplinary approach to the study of organizations and management.

Simon wrote that although business schools had tried to gain access to ‘knowledge from the world of practice’ by seeking faculty members with management experience, it proved difficult to find business people who both wanted to work in academe and were able to function effectively there. Though, with his mentor Chester Barnard surely in mind, his note on page 7 of the 1967 article recognized the few exceptions that prove this rule. For the most part business schools are constrained to recruit their faculty from those who have undergone graduate education in the relevant scientific disciplines or in business schools themselves. While it is possible to provide business school faculty with good access to ‘knowledge from practice’ by consulting and field research, Simon argued only individuals educated in the basic scientific disciplines can provide business schools

with access to the scientific knowledge underlying the practice. Moreover, he noted, it is necessary that business schools not merely recruit faculty from the disciplines but that they recruit “first-rate men [sic].” Simon is not explicit about why this is so, though his discussion of the challenges involved in attracting first-rate scholars trained in the disciplines revealed his appreciation of the relatively low scientific status accorded to ‘applied research’ as compared with ‘pure’ or ‘basic’ research - a strike against any professional school’s mission. Thus business schools could accommodate those wanting to do ‘significant, fundamental work’, but they would only be seen as places where first-rate scholars from the disciplines wanted to be if they were able to maintain active intellectual relationships with those disciplines.

Projecting his own aesthetic, Simon hoped first-rate scholars could be attracted to the unique challenges of interdisciplinary research, spanning the realms of pure and applied research, and thereby into the managerially and societally critical questions on which he believed business schools should concentrate. There, scholars will be “confronted with problems of end use, arising from the environment of business, that [they] can transform into exciting, non-routine problems of fundamental research” (Simon 1967:9). At the same time a “business school does not stand a chance of recruiting first-rate scientists if it insists that all research done within its walls must have direct relevance to business. It will do better to demonstrate its respect for fundamental research by having, and valuing, in its faculty at least some members much of whose work does not have obvious relevance to business, but does command high respect in its discipline”(Simon 1967:10). Put another way, one price for business schools employing disciplinary scholars is that

they will produce some research that is “not particularly relevant to the specific concerns of the business school” (Simon 1967:10).

But such ‘loss’ is not the principal design issue. Simon goes on to state that business school faculties constituted according to his model will likely have two faculty cohorts, one drawn from the scientific disciplines and another more applied group trained in doctoral programs in business schools. “The danger,” he notes, “is that the barrier between these two sets of social systems will simply be transferred from the outside world to the interior of the business school itself”(Simon 1967:11). If such a barrier is allowed to arise and go unaddressed within business schools, the result will be an ‘equilibrium’ in which each cohort is ‘absorbed’ in its own concerns, scientific or professional, respectively; under these circumstances, no synthesis of the two realms of knowledge can take place, and the professional school not only becomes less attractive as a place for people trained in the disciplines to pursue research but entirely fails its basic mission. (Simon cites historical evidence for the tendency towards entropy in business schools in the way that economists became minority enclaves within business schools in the past, and in some cases ended up separating themselves from business schools altogether.) Thus Deans and senior business school faculty have what Simon calls the “unceasing task of fighting the natural increase of entropy, of preventing the system from moving toward the equilibrium it would otherwise seek” (Simon 1967:12).

Simon itemized some organizational design tools that business school leaders might use to combat the ‘natural increase of entropy’. “Such a trivial matter as office locations may

be important,” he observed. Plus departmental structures are to be avoided or minimized in importance, and no ‘specialized subgroup’ should be given autonomy in recruiting and evaluating faculty into its specialized area. “Curricular planning, too, can best be done by groups that cut across disciplinary boundaries,” Simon asserted; “almost every curricular area can be organized so that practical management problems are rubbed up against economic and psychological theories and mathematical techniques - and conversely ... Parallel opportunities to encourage communication across boundaries can be sought in research” (Simon 1967:13).

Ultimately Simon argued that the ‘full solution’ to the problem of organizational design in business schools lies in “the prospect of developing an explicit, abstract, intellectual *theory* [italics in original] of the processes of synthesis and design”. That is to say, since “the decision-making process underlying design is now sufficiently well understood so that computer programs have been written that automate it in significant instances” (Simon 1967:15), the study of organizations was finally becoming scientific enough to attract first-rate scientific minds. With this new theory in hand business schools would have their own theoretical and disciplinary foundation and be able to engage the demarcating set of research problems that would define them as full-fledged professional schools. From this position they would advance our understanding of the administrative/organizational/planning needs of democracy - which, for Simon and his colleagues at GSIA, was the ultimate purpose of business schools.

This claim on page 15 of Simon's 1967 paper is extraordinary, even when we take the rest of his massive oeuvre into account. While Simon declared himself an 'empirical' positivist (Simon 1991:44), he took notable exception to logical positivism and was no naïf who thought human problems were open to being fully modeled by rigorous methods. Given the present hegemony of the rational choice paradigm, and its implication that everything important can be fully modeled, it is increasingly difficult to make this point, more so now than in Simon's time (Ferraro et. al., 2005). But if we attend closely to what Simon actually wrote, we see he is clear on this, and nowhere more so than in this modestly presented, but ultimately radical, paper on organizational design. Simon's thought was always marked by a tension between the native humanism and concern for the individual that drove his initial interest in political theorizing versus his belief in the social policy potential of mathematics and logical analysis. His 'life-long' project was to understand how human beings made decisions when the preconditions for purely rational analysis were absent (Simon 2001) - it was not to arrive at a fully modeled world that would leave no place for the human being who lacked the attributes of Rational Man. Simon's entire oeuvre is a rejection of the basic axiom of deterministic micro economics. His work is frequently misunderstood because his project was never intended to fit into the current business school research paradigm, as many assume it did. In fact his work retained its invigorating tension between the human spirit and imagination, and what could be modeled, to its very end (Spender forthcoming).

The dialectical opposition of fact and value, absolutely fundamental to Simon's PhD thesis (and *Administrative Behavior*), was an early manifestation of this tension.

Accepting it, Simon located himself in the long tradition that saw professionalism - which is how Simon saw management - as being able to sustain its reputation only by dealing competently and ethically with precisely those aspects of its work that could not be reduced to mathematical formulae (Porter 1995). While professionalism certainly implied a thorough grasp of everything science could reveal about the context of a practice, its truest test lay in understanding the limits to this kind of analysis, and how to act when 'the facts' were not logically conclusive. Thus medical practitioners, for instance, are valued for their 'creative' judgment in the face of the human body's ungraspable complexity, especially when we are realized as located in and interacting with a complex world. Consequently Simon saw management as a creative 'art', and organizational design likewise - which is why the term 'art' appears in this paper. In short the organizational design problem always requires something ineffable beyond what deterministic theory can provide, and this is why it is relevant in ways that microeconomics is not. Here Simon's deep humility and social ethic must be contrasted with the vaulting ambition of those instrumentalist positivist theorists who, disregarding human creativity and its attendant responsibility in favor of logic and 'the numbers', have done so much to legitimate our descent into today's dilemmas.

The puzzle then is about the italicized 'theory' on page 15 of the paper. Clearly Simon does not mean theory in the positivistic sense of logically determining - but rather what we now call a 'heuristic'. His belief that humans' heuristics could be surfaced and captured as theory-like statements went back to the remarkable events of December 1955 when he and Allen Newell 'invented' a thinking machine (Simon 1991:206). More

precisely, they worked out a machine-processable language that would enable human actions under uncertainty to be captured and predicted. Today we are more comfortable with this notion - largely as a result of the 'discovery' of psychological decision making biases and the development of behavioral economics (Camerer, Loewenstein et al. 2004), work that stands on Simon's insights. But the crucial point is that while heuristic statements are generalizations that 'predict' human behavior they are not derived from any axiomatic model of the human being, particularly not from the rational man model that is emblematic of neoliberal rationalism or microeconomics. Instead of being deductions from such axioms, heuristics are Baconian generalizations from observed experience. Simon's excitement at opening up this completely new methodological avenue into organizational theorizing was compressed into the terse 'prospects are exceedingly good at this time' (Simon 1967:15). The achievement, of course, led directly to his Nobel prize. Simon never deviated from this multi-disciplinary professional synthesis-oriented view; in his autobiography's analysis of the parlous state of engineering design, repeating his 1967 words almost verbatim (Simon 1991:257).

Simon's argument cut a new path into the current discussion about rigor and relevance in the business school curriculum. The charge is that our research is irrelevant because of our inappropriate choices of research theory - that we prioritize our publishing and promotion interests over the real-world anxieties of business managers. The recommendation is that we should work on what matters to managers - globalization, hyper-competition, or the management of human multi-cultural capital - and avoid being

driven by the theoretical debates in our journals (Walsh, Tushman et al. 2007; Fincham and Clark 2009; Hodgkinson and Rousseau 2009; Worrell 2009).

Simon moved in a quite different direction, arguing that the rigor and relevance gap is a matter of methodology not of research topic. Research into heuristics revealed the ways in which practitioners synthesize answers under circumstances that render logical analysis impotent - the 'protocols' revealed can then be programmed and tested for their width of application, as GSIA's research program soon began to show (Cyert and March 1963; Cohen and Cyert 1965). None of this makes sense in the single-dimensional deterministic methodological framework that now dominates our research activity. Simon's program must be located in a multi-disciplinary framework, in which the inter-disciplinary distinctions arise from the incompatibility of the axioms underlying the disciplines engaged. His program operationalizes the approach to organization and management that Barnard sketched and to which Simon considered himself the heir (Simon 1991). The crucial function of the executive is that of inventing and exercising professional judgment under circumstances that make synthesis crucial, to which analysis is servant, rather than the other way round.

The challenge of business school design is then, first, one of creating the multi-disciplinary intellectual space that enables researchers to see managerial judgment as it stands against a background of logical scientific analysis, and second to find a method of 'teaching' such professional judgment when it has been revealed. The HBS commitment to case-work was grounded in the older German tradition of teaching such professional

judgment, especially in the area of public policy, through discussion (Heaton 1968; Towl 1969; Grenier, Leitch et al. 1970; Christensen 1987; Christensen, Garvin et al. 1991). Simon believed this venerable, woolly and unscientific approach could now be retired in the face of the 'exceedingly good prospects' of heuristic research.

From his broad grasp of the methodological challenges facing the social sciences, and as an optimist and idealist as well as a rationalist and realist, Simon saw immense possibilities for business schools as well as the significant challenges in attaining them. By promoting research into executive synthesis they could claim a completely unique territory that would establish their professional and theoretical identity and set them alongside the professions of medicine or engineering. In the decades following his 1967 essay, the reforms instituted by the Ford Foundation, based on the work at GSIA, continued to ripple through American business education (Pooley and Solovey 2010:229). But, ironically, Simon was often too correct in much of what he said about business schools in particular and organizations in general - not least about how the unintended consequences of decisions inevitably lead to new organizational problems, vividly exemplified by our post-Ford business schools and their plethora of challenges. At the same time, his organizational vision was bounded by the dominant intellectual constructs and anxieties of his times - especially those of the Cold War - as well as by his own theoretical ambiguities, and so may not be the best guidance we can get about how to deal with our present circumstances and concerns.

## **BUSINESS EDUCATION AND BUSINESS SCHOOL RESEARCH IN THE WAKE OF SIMON**

Simon proved especially prophetic in his analysis of the problem of organizational design in business schools with his warnings about the dangers of having two cohorts on business school faculties. The entropy maximizing a movement towards equilibrium that Simon feared has long since become manifest in the narrow disciplinary orientation of business school faculty and their remoteness from the concerns of practicing managers in the context of the research that they and their more practice-oriented colleagues produce. The problem is the dominance of a single methodology that corresponds closely to neoliberal economic scholarship. Any other single methodological dogma would lead to a similar impasse. The move, of course, further weakened the already insubstantial intellectual foundations of business education and business school research. The practice-based robust interdisciplinary approach to the study of management that Simon and his GSIA colleagues advocated dissolved and disappeared as the business school economists institutionalized their impoverished conceptions of firms as simple production functions and their activities as fully rational goal-seeking. The precise conditions Simon feared were created - business schools would be forced to compete at a disadvantage for the best people coming out of graduate programs and begin to feel obliged to mimic economics departments' methods and values.

Simon argued that given such inherent tendencies to increasing entropy in organizations, business school leaders would have to be unremitting in their efforts to prevent their schools from slipping into the equilibrium state where practice-oriented and discipline-

oriented faculty would move into separate spheres ensuring no integration of ‘knowledge from practice’ and ‘knowledge from the disciplines’ could occur. Here the limitations of Simon’s perspective became increasingly evident. Having had the benefit of working in the school wherein Lee Bach - a master of the art of fighting entropy - was Dean, Simon may have underestimated the uniqueness of the executive synthesis and leadership Bach provided, and so did not place as much emphasis on creative leadership as he might have. In his autobiography (Simon 1991) and in later editions of *Administrative Behavior* (Simon 1997:xxiv), Simon recognized how GSIA’s unique position as a new business school contributed to a sense of missionary zeal that, along with Bach’s strong leadership, united its intellectually diverse faculty (Leavitt 1996). Simon was hardly alone in underestimating the importance of leadership in business schools; the Ford Foundation likewise attempted to duplicate and diffuse the GSIA model using its structure and faculty composition as proxies for reform with little consideration of its uniqueness (Pooley and Solovey 2010).

Despite their limitations many of Simon’s ideas about how to achieve a synthesis of knowledge drawn from the scientific disciplines and business practice, and about how such a synthesis could intellectually invigorate business schools and increase their relevance in the contemporary world, remain well worth pursuing today. If there is any single best place in which business schools could begin to implement these ideas it is in their doctoral programs. Indeed one of the best ways to understand the situation of business schools today is to think through how we have been training and socializing the next generation of our scholars over the past two decades. Erik Erickson reminded us that

if you want to understand how a society works, study its nurseries. Doctoral programs are the nurseries of organizational scholarship, and examining the structure, content, and processes of business school doctoral programs can shed light not only on how we are training our future scholars but also on what kind of an institution we are training them for.

The state of business school doctoral programs is not good (AACSB 2003). At present, these programs face significant resource constraints as well as fundamental questions about their quality and purpose. The AACSB found the number of doctoral students graduating from the five largest business school doctoral programs had declined starting in the late 1980s (AACSB 2002). It postulated reasons for this decline, the first being a shortage of faculty qualified to teach in these programs. Another being that many business school Deans believe the quality of the doctoral candidates in business schools is lower than that of graduate students in disciplinary programs, with the result that business school administrators have begun shrinking the size of their doctoral programs or phasing them out altogether. Even among schools with competitive admissions doctoral programs rather than open enrollment ones, 68 percent noted that the ‘quality of doctoral program applicants’ as a limiting factor in expanding their programs. (AACSB 2003). Lacking a vigorous model for interdisciplinary research that bridges the realms of disciplinary knowledge and practice, many business school doctoral programs have defaulted to a disciplinary orientation, merely exacerbating the problem of ‘equilibrium’ in business school faculties, increasing the difficulty of building intellectual bridges across the disciplines, and increasing the volume of business school research that

advances little but careerist aspirations. Yet another consequence of the increase in the discipline-based training of business school faculty is that business school doctoral programs are unclear about their purpose and vision. The missions of business school doctoral programs seem as varied as the number of programs: some describe themselves as multi-disciplinary training programs, while others position themselves as departments of applied social science (Polzer, Gulati et al. 2009). Such heterogeneity creates considerable confusion and tension for doctoral students hacking their way into the profession. Since the choices are many the implications of the student's choices are significant.

While a wide range of choices can be good for fostering experimentation, business schools should ask themselves fundamental questions about their doctoral programs - questions that can also help clarify the direction in which business education must go. For example, what is a doctoral degree in business for? What are we preparing our students for - to be able to compete in publications and scholarly recognition with students trained in traditional disciplinary settings, albeit while working in a business school setting? Or do we hope to train 'first-class' students with a genuine curiosity towards the complexities of the executive process at the intersection of discipline-based knowledge and business practice? Should we focus on students who wish to contribute to a body of rigorous and relevant managerial knowledge? Discussions of purpose are often avoided in our institutions because they create risks of fundamental and passionate disagreement, thereby threatening the precarious stand-off in which the various faculty factions appease one another and turf wars are avoided - even though our students and the larger endeavor

of business education probably suffer in the process. Vigorous but respectful debate about how business education is evolving and the merits of what we are doing should be seen as the hallmarks of a vibrant and healthy intellectual community, not a sign of weakness. This is certainly one of the lessons to be drawn from Simon's experience at GSIA.

Beyond this call for open debate lie more particular lessons - especially about what a business school research program that fulfilled the promise of business education as genuine professional education, not just a peculiar hybrid of high-mindedness and careerism, might look like. We might do well to reexamine what we are doing and show the executive judgment and courage necessary to implement radical change, beginning with some doctoral programs that maintain both methodological openness and a diversity of normative, ethical and intellectual commitments to socially meaningful and useful theory, the intellectual context epitomized by Simon's labors. In that way we might successfully rehabilitate our earlier claim that the role of the business schools is to play a significant part in educating future business leaders committed to the ideals of democratic capitalism (Khurana 2007) - ideals that guided Simon's life-work.

## REFERENCES

**Need authors**(1983). The Balanced Excellence of George Leland Bach. Stanford Graduate School of Business Magazine. Stanford, CA: Stanford Graduate School of Business, **52**, 10-14.

AACSB (2002). Management Education At Risk. St. Louis MO, AACSB International. - **Spell out AACSB in full? and the next ref too - they have done at the end of the 2<sup>nd</sup> ref?**

AACSB (2003). Sustaining Scholarship in Business Schools. St. Louis, Mo: American Assembly of Collegiate Schools of Business, International.

Amadae, S. M. (2003). Rationalizing Capitalist Democracy: The Cold War Origins of Rational Choice Liberalism. Chicago IL, University of Chicago Press.

Anderson, J. R., Reder, L. M. and Simon, H. A. (1998). Radical Constructivism and Cognitive Psychology. in Ravitch, D. Brookings Papers on Educational Policy.. Washington DC, Brookings, 227-278.

Augier, M. and March, J. G. (2001). "Remembering Herbert A. Simon (1916-2001)." Public Administration Review **61**, 4, 396-402.

Augier, M. and March, J.G. (Eds). (2004). Models of a Man: Essays in Memory of Herbert A. Simon. Cambridge MA, MIT Press.

Augier, M. and March, J. G. (Eds) (2002). The economics of choice, change, and organization : Essays in memory of Richard M. Cyert. Cheltenham and Northampton, MA, Edward Elgar.

Augier, M. and Prietula, M. (2007). "Historical Roots of the Behavioral Theory of the Firm Model at GSIA." Organization Science **18**, 3, 507-522.

Bach, G. L. (1958). "Some Observations on the Business School of Tomorrow." Management Science **4**, 4, 351-364.

Bach, G. L. (1986). "A Computer for Carnegie." Annals of the History of Computing **8**, 1, 39-41.

Backhouse, R. E. and Fontaine, P. (2010). Towards a History of The Social Sciences. in Backhouse, R.E. and Fontaine, P. The History of the Social Sciences since 1945. Cambridge: Cambridge University Press,184-234.

Baum, J. A. C. and Oliver, C. (1996). "Toward an Institutional Ecology of Organizational Founding." The Academy of Management Journal **39**, 5, 1378-1427.

Bennis, W. and O'Toole, J. (2005). "How Business Schools Lost Their Way." Harvard Business Review **83**, 5, 96-104.

Bernstein, M. A. (2001). A perilous progress: Economists and public purpose in twentieth-century America. Princeton, NJ, Princeton University Press.

Bottom, W. P. (2009). "Organizing Intelligence: Development of Behavioral Science and the Research Based Model of Business Education." Journal of the History of the Behavioral Sciences **45**, 3, 253-283.

- Bush, V. (1945). Science: The Endless Frontier. Washington DC, US Government Printing Office.
- Camerer, C. F., Loewenstein, G. and Rabin, M. (Eds) (2004). Advances in Behavioral Economics. Princeton NJ: Princeton University Press.
- Carnegie Institute of Technology Graduate School of Industrial Administration (1952). Fact Sheet: Official Dedication, Carnegie. - **need place, state: Publisher**
- Chandler, A. D. (1977). The Visible Hand: The Managerial Revolution in American Business. Cambridge MA, Belknap Press.
- Christensen, C. R. (1987). Teaching with Cases at the Harvard Business School. in Christensen, C. R. Teaching and the Case Method. Boston, MA: Harvard Business School Press, 16-49.
- Christensen, C. R., Garvin, D. A. and Sweet, A. (1991). Education for Judgment: The Artistry of Discussion Leadership. Boston, MA: Harvard Business School Press.
- Clark, W. (2006). Academic Charisma and the Origins of the Research University. Chicago, IL: University of Chicago Press.
- Cohen, K. J. and Cyert, R.M. (1965). Theory of the Firm: Resource Allocation in a Market Economy. Englewood Cliffs, NJ: Prentice-Hall.
- Copeland, M. T. (1958). And Mark an Era: The Story of the Harvard Business School. Boston, MA: Little Brown.
- Crowther-Heyck, H. (2005). Herbert A. Simon - The Bounds of Reason in America. Baltimore, PA: Johns Hopkins University Press.
- Crowther-Heyck, H. (2006). "Herbert Simon and the GSIA: Building an Interdisciplinary Community." Journal of the History of the Behavioral Sciences **42**, 4, 311-334.
- Crowther-Heyck, H. (2006). "Patrons of the Revolution: Ideals and Institutions in Postwar Behavioral Science." Isis **97**, 3, 420-446.
- Cyert, R. M. and March, J. G. (1963). A Behavioral Theory of the Firm. Englewood Cliffs, NJ: Prentice-Hall.
- Daniel, C. A. (1998). MBA: the first century. Lewisburg, PA, Bucknell University Press.
- Datar, S. M., Garvin, D. A. and Cullen, P. (2010). Rethinking the MBA: Business Education at a Crossroads. Boston, MA: Harvard Business Press.

Durand, T. and Dameron, S. (Eds) (2008). The Future of Business Schools: Scenarios and Strategies for 2020. Basingstoke: Palgrave Macmillan.

Engwall, L. and Zamagni, V. (Eds) (1998). Management Education in Historical Perspective. Manchester: Manchester University Press.

Fenton, E. (2000). Carnegie-Mellon 1900-2000: A Centennial History. Pittsburgh PA, Carnegie Mellon University Press.

Ferraro, F., Pfeffer, J. and Sutton, R. (2005). "Economics Language and Assumptions: How Theories Can Become Self-Fulfilling." *Academy of Management Review* **30**, 1, 8-24.

Fincham, R. and Clark, T. (2009). "Introduction: Can We Bridge the Rigour-Relevance Gap?" *Journal of Management Studies* **46**, 3, 510-515.

Fligstein, N. (1990). The transformation of corporate control. Cambridge, Ma: Harvard University Press.

Fourcade, M. (2009). Economists and societies : Discipline and profession in the United States, Britain, and France, 1890s to 1990s. Princeton, NJ: Princeton University Press.

Gordon, R. A. and Howell, J. E. (1959). Higher education for business. New York: Columbia University Press.

Gordon, R. A. R. A. G. (1958). Some Current Issues in Business Education, AACSB. Paper presented at the Annual Meeting of the AACSB, Gatlinburg, TN, May 2, 1958  
**Spell out AACSB in full as early refs?**

Graham, H. D. and Diamond, N (1997). The rise of American research universities : elites and challengers in the postwar era. Baltimore, MD: Johns Hopkins University Press.

Grenier, L. E., and Leitch, D. P. et al. (1970). "Putting Judgment Back into Decisions." *Harvard Business Review* **48**(2, March-April): 59-67. **Typesetter: Please ask author to provide names of all authors**

Guillén, M. F. (1994). Models of management: Work, authority, and organization in a comparative perspective. Chicago, IL: University of Chicago Press.

Hambrick, D. C. (1994). "1993 Presidential Address - What if the Academy Actually Mattered." *Academy of Management Review* **19**, 1, 11-16.

Hannan, M. T. and Freeman, J. (1989). Organizational ecology. Cambridge, MA: Harvard University Press.

Heaton, H. (1968). A Scholar in Action: Edwin F. Gay. New York: Greenwood Press.

Hodgkinson, G. P. and Rousseau, D. M. (2009). "Bridging the Rigour-Relevance Gap in Management Research: It's Already Happening!" Journal of Management Studies **46**, 3, 534-546.

Howell, J. E. (1962). A Terminal Program in Business Education: GCT, Ford Foundation Archives.

Howell, J. E. (1966). The Ford Foundation and the Revolution in Business Education: A Case Study in Philanthropy, Ford Foundation Archives.

James, E. J. (1898). The Education of Business Men: A View of the Organization and Courses of Study in the Commercial High Schools of Europe. Chicago, IL: University of Chicago Press.

Johnson, V. (2007). "What Is Organizational Imprinting? Cultural Entrepreneurship in the Founding of the Paris Opera." American Journal of Sociology **113**, 1, 97-127.

Jones, E. D. (1913). "Some Propositions Concerning University Instruction in Business Administration." Journal of Political Economy **21**, 3, 185-195.

Khurana, R. (2007). From higher aims to hired hands : The social transformation of American business schools and the unfulfilled promise of management as a profession. Princeton, NJ:Princeton University Press.

Khurana, R. and Marquis, C. (2006). "Diagnosing and Dissolving Our "Translation Gap"." Journal of Management Inquiry **15**, 4, 406.

Lagemann, E. C. (1987). "The Politics of Knowledge: The Carnegie Corporation and the Formulation of Public Policy." History of Education Quarterly **27**, 2, 205-220.

Leavitt, H. J. (1987). Corporate Pathfinders: Building Vision and Values into Organizations. New York: Penguin Books.

Leavitt, H. J. (1996). "The Old Days, Hot Groups, and Managers' Lib." Administrative Science Quarterly **41**, 2, 288-300.

Light, D. W. (1983). The Development of Professional Schools in America. in Jarasch, K. H. The Transformation of Higher Learning 1860-1930. **Stuttgart University of Chicago Press**, 345-365. something's wrong

Mayo, E. (1933). The human problems of an industrial civilization. New York: Macmillan.

McNair, M. P. and Hersum, A. (Eds) (1954). The Case Method at the Harvard Business School. New York: McGraw-Hill.

Mintzberg, H. (2004). Managers not MBAs: A Hard Look at the Soft Practice of Managing and Management Development. San Francisco, CA: Berrett-Koehler Publishers.

Pierson, F. C. (1959). The education of American businessmen; A study of university-college programs in business administration. New York: McGraw-Hill.

Polzer, J., Gulati, R., Khurana, R. and Tushman, M. L. (2009). "Crossing Boundaries to Increase Relevance in Organizational Research." Journal of Management Inquiry **18**, 4, 280.

Pooley, J. and Solovey, M. (2010). "Marginal to the Revolution: The Curious Relationship between Economics and the Behavioral Sciences Movement in Mid-Twentieth-Century America." History of Political Economy **42**, Annual Supplement, 199-233.

Porter, T. M. (1995). Trust in Numbers: The Pursuit of Objectivity in Science and Public Life. Princeton, NJ: Princeton University Press.

Porter, T. M. (1995). Trust in numbers: the pursuit of objectivity in science and public life. Princeton, NJ: Princeton University Press.

Rajan, R. and Zingales, L. (2004). Saving capitalism from the capitalists: Unleashing the power of financial markets to create wealth and spread opportunity. Princeton, NJ: Princeton University Press.

Roethlisberger, F. J. (1977). The elusive phenomena: An autobiographical account of my work in the field of organizational behavior at the Harvard Business School. Cambridge, MA: Division of Research, Graduate School of Business Administration Harvard University (distributed by Harvard University Press).

Report of the Ford Foundation (1951), Ford Foundation Archives, New York, Ford Foundation

Simon, H. A. (1967). "The Business School: A Problem in Organizational Design." Journal of Management Studies **4**, 1, 1-16.

Simon, H. A. (1985). Charles E. Merriam and the 'Chicago School' of Political Science. Urbana IL, Department of Political Science **need more here is University of Chicago and Urbana-Campaign the publisher?**

Simon, H. A. (1991). Models of My Life. New York: Basic Books.

Simon, H. A. (1997). Administrative Behavior: A Study of Decision-Making Processes in Administrative Organization. New York: Free Press.

Simon, H. A. (2001). "On Simulating Simon: His Monomania, and its Sources in Bounded Rationality." Studies in the History and Philosophy of Science **32**, 3, 501-505.

Simon, H. A. (2002). Achieving Excellence in Institutions. in Ferrare, M. The Pursuit of Excellence Through Education. Mahwah, NJ: Lawrence Erlbaum, 181-193.

Spender, J.-C. (2007). "Management as a Regulated Profession: An Essay." Journal of Management Inquiry **16**, 1, 32-42.

Spender, J.-C. (forthcoming). Herbert Alexander Simon: Philosopher of the Organizational Life-World. in Witzel, M and Warner, M. Oxford Handbook of Management Thinkers. Oxford: Oxford University Press. **is this still forthcoming?**

Starkey, K., Hatchuel, A. and Tempest, S. (2004). Rethinking the Business School. Journal of Management Studies, **41**, 1521-31.

Stinchcombe, A. L. (1965). Social structure and organizations. Handbook of Organizations. J. G. March. Chicago, Il: Rand McNally, 142-193.

Towl, A. R. (1969). To Study Administration by Cases. Boston, MA: Harvard University GSBA.

Walsh, J. P., Tushman, M. L., Kimberly, J. R., Starbuck, B. and Ashford, S. (2007). "On the Relationship between Research and Practice: Debate and Reflections." Journal of Management Inquiry **16**,2,128-154.

Wheeler, J. (1965). Changes in Collegiate Business Education in the United States 1954-64 and the Role of the Ford Foundation in these Changes, **need place, state**: Ford Foundation Archives.

Williamson, O. E. (2004). Herbert Simon and Organization Theory: Lessons for the Theory of the Firm. in Augier, M, and March, J.G. Models of a Man: Essays in Mmeory of Herbert A. Simon. Cambridge, MA: MIT Press, 279-295.

Wolin, S. S. (2004). Politics and vision: Continuity and innovation in Western political thought. Princeton, NJ: Princeton University Press.

Worrell, D. L. (2009). "Assessing Business Scholarship: The Difficulties in Moving Beyond the Rigor-Relevance Paradigm Trap." Academy of Management Learning & Education **8**, 1, 127-130.