The Basic Art and Science in Management Education

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Abstract

One of the enduring questions in the field of management is whether it is an art or a science. Dictionary defines Management as an art is "skill in conducting any human activity" and science as "any skill or technique that reflects a precise application of facts or a principle." Reflected in the differences in these definitions is the use of precision in science, in that there is a particular, prescribed way in which a expert should act. Thus, management as a science would indicate that in practice, experts use a specific body of information and facts to guide their behaviors, but that management as an art requires no specific body of knowledge, only skill. Conversely, those who believe management is an art are likely to believe that there is no specific way to teach or understand management, and that it is a skill borne of personality and ability. Those who believe in management as an art are likely to believe that certain people are more predisposed to be effective experts than are others, and that some people cannot be taught to be effective experts. That is, even with an understanding of management research and an education in management, some people will not be capable of being effective practicing experts.

Foundations of the Management as a Science Perspective: Practicing experts who believe in management as a science are likely to believe that there are ideal managerial practices for certain situations. That is, when faced with a managerial dilemma, the expert who believes in the scientific foundation of his or her craft will expect that there is a rational and objective way to determine the correct course of action. This expert is likely to follow general principles and theories and also by creating and testing hypotheses. For instance, if a expert has a problem with an employee's poor work performance, the expert will look to specific means of performance improvement, expecting that certain principles will work in most situations. He or she may rely on concepts learned in business school or through a company training program when determining a course of action, perhaps paying less attention to political and social factors involved in the situation. Many early management researchers subscribed to the vision of experts as scientists. The scientific management movement was the primary driver of this perspective. Scientific management, pioneered by Frederick W. Taylor, Frank and Lillian Gilbert, and others, attempted to discover "the one best way" to perform jobs. They used scientific processes to evaluate and organize work so that it became more efficient and effective. Scientific management's emphasis on both reducing inefficiencies and on understanding the psychology of workers changed expert and employee attitudes towards the practice of management. See Exhibit 1 for a summary of the principles of scientific management.

Foundations of the Management as an Art Perspective: Practicing experts who believe in management as an art are unlikely to believe that scientific principles and theories will be able to

implement in actual managerial situations. Instead, these experts are likely to rely on the social and political environment surrounding the managerial issue, using their own knowledge of a situation, rather than generic rules, to determine a course of action. For example, as a contrast to the example given previously, a expert who has a problem with an employee's poor work performance is likely to rely on his or her own experiences and judgment when addressing this issue. Rather than having a standard response to such a problem, this expert is likely to consider a broad range of social and political factors, and is likely to take different actions depending on the context of the problem. Henry Mintzberg is probably the most well-known and prominent advocate of the school of thought that management is an art. Mintzberg is an academic researcher whose work capturing the actual daily tasks of real experts was ground breaking research for its time. Mintzberg, through his observation of actual experts in their daily work, determined that experts did not sit at their desks, thinking, evaluating, and deciding all day long, working for long, uninterrupted time periods. Rather, Mintzberg determined that mangers engaged in very fragmented work, with constant interruptions and rare opportunities to quietly consider managerial issues. Thus, Mintzberg revolutionized thinking about experts at the time that his work was published, challenging the prior notion that experts behaved rationally and methodically. This was in line with the perspective of management as an art, because it indicated that experts did not necessarily have routine behaviours throughout their days, but instead used their own social and political skills to solve problems that arose throughout the course of work. Another scholar that promoted the notion of management as an art was David E. Lilienthal, who in 1967 his series of lectures had titled *Management: A Humanist Art* published. In this set of published lectures, Lilienthal argues that management requires more than a mastery of techniques and skills; instead, it also requires that experts understand individuals and their motivations and help them achieve their goals. Lilienthal believed that combining management and leadership into practice, by not only getting work done but understanding the meaning behind the work, as effective managerial behaviour. Thus, he promoted the idea of the expert as a motivator and facilitator of others. This expert as an artist was likely to respond differently to each employee and situation, rather than use a prescribed set of responses dictated by set of known guidelines. Another proponent of the management as art school of thought is Peter Drucker, famed management scholar who is best known for developing ideas related to total quality management. Drucker terms management "a liberal art," claiming that it is such because it deals with the fundamentals of knowledge, wisdom, and leadership, but because it is also concerned with practice and application. Drucker argues that the discipline (i.e., the science) of management attempts to create a paradigm for experts, in which facts are established, and exceptions to these facts are ignored as anomalies. He is critical of the assumptions that make up the management paradigm, because these assumptions change over time as society and the business environment change. Thus, management is more of an art, because scientific "facts" do not remain stable over time.

Exhibit 1 Frederick W. Taylor's Principles of Scientific Management

1. Experts must study the way that workers perform their tasks and understand the job knowledge (formal and informal) that workers have, and then find ways to improve how tasks are performed.
2. Experts must codify new methods of performing tasks into written work rules and standard operating procedures.

3. Experts should hire workers who have skills and abilities needed for the tasks to be completed, and should train them to perform the tasks according to the established procedures.
4. Experts must establish a level of performance for the task that is acceptable and fair and should link it to a pay system that rewards workers who perform above the acceptable level.

Art and Science in Management Research: Noted researcher Thomas Kuhn, in his book The Structure of Scientific Revolutions, addresses issues associated with the state of current scientific research and the opportunities for scientific discovery. Kuhn, in his previous editions of this text, drew distinctions between mature and immature fields of study. In mature fields of study, many of the central questions of that field have been answered, and strong consensus exists among researchers regarding the fundamental assumptions of that field. Conversely, in immature fields of study, there is still a great deal of debate on major questions in the field, and gains in knowledge come sporadically. In many ways, management is an immature science. While its foundations in psychology, sociology, and other related areas give it a long and rich history, the nature of the areas of study renders it immature. That is, due to the difficulties of studying human behavior in a number of disparate settings, the study of management is still very young when compared to other fields of research (e.g., in the physical sciences). In fact, many scholars have argued that the social sciences (e.g., management research) suffer from envy of the physical sciences, in which "truths" are able to be determined through research. As such, social sciences researchers may strive to create a more "scientific" approach to their fields in order to grant them more legitimacy. Despite its relative immaturity, some consistent answers have been developed in the field of management. In many ways this is due to the increased sophistication of management research. However, there are still a number of research gaps in management; despite our increased knowledge in some areas, there is still a great deal of disagreement and confusion in other areas. In these circumstances, the practice of management is likely to be dictated by the perspective of management as an art. Because there are no hard and fast rules in certain circumstances, individual experts' experiences and skills must guide them.

Today, much of the management research conducted in academic institutions blends the notion of management as an art and as a science. Some of these trends in management research that have pushed the field in either direction namely increased statistical sophistication and the emphasis on contextual influences is described below:

Increased Statistical Sophistication: As computer technology continues to improve, the ability of management researchers to conduct sophisticated statistical analyses has also been enhanced. Powerful statistical computing packages are now readily available for desktop computers, allowing for high-speed analysis of complex statistical models. Additionally, new statistical modeling techniques, such as structural equations modeling, have gained footing in management research. Thus, management researchers are now better able to empirically test more complex research hypotheses, and management as a science is perpetuated. The improvement in researchers' ability to analyze statistics more quickly has resulted in an increase in information about theories of management. Practicing experts may now know of certain relationships that have received strong support through decades of empirical research. Such "truths" may become guiding principles that practicing experts see as ideal solutions to a variety of situations. For

instance, numerous empirical studies over several recent decades have supported the relationship between appropriate goal setting and higher work performance. This relationship has been tested in a variety of situations, with a number of contextual influences present, yet the statistical relationship holds in nearly all of them. Thus, a practicing expert may see this body of empirical research and, in a work situation, see the benefits of goal setting on performance as a scientific ideal. He or she may then implement goal setting in a number of practical situations, bolstered by the confidence afforded by decades of research supporting such actions. Meta-analysis, in particular, is a methodological procedure that has contributed significantly to the study of management. Meta-analysis is a statistical technique that allows a researcher to combine findings from multiple studies, corrects for errors in study design, and determines an "average" statistical relationship among variables. Meta-analysis first gained a foothold in management research in studies of the validity of selection techniques for different jobs in different organizations. Before the application of meta-analysis to research on the validity of different selection techniques, there was a belief in the situational specificity of these selection methods. That is, studies of the accuracy of selection techniques in predicting subsequent job performance had such disparate results that academics concluded that validity of a standardized test, for example, would differ dramatically in each selection situation (e.g., with different job applicants, in different organizations, in different geographic regions). This myth was dispelled, however, with the application of meta-analysis to the results of the collected body of research on the validity of selection methods. The use of meta-analysis established that the differences in findings were due primarily to limitations of research design, such as small sample size, unreliability of measures, and other correctable problems. When meta-analysis was applied to this group of studies, they were combined to determine that validates of selection techniques were general across jobs and organizations. Thus, the use of meta-analysis helped to establish that cognitive ability tests and structured interviews were highly valid selection methods in nearly every job. Meta-analysis has now been applied to many different areas of management research, including training, recruitment, fairness, and many other topics. Additionally, there have been a number of refinements to the statistical corrections used in meta-analysis. This increased acceptance of and use of meta-analysis in management research supports the notion of management as a science. Meta-analysis provides for "truths" in management relationships between variables that hold strong regardless of the people or situation involved. For instance, one consistent finding is that structured selection interviews, ones in which applicants are asked the same set of predetermined questions, and in which responses are evaluated using the same criteria, are a more valid predictor of future job performance than are unstructured interviews, in which applicants are asked different questions and responses are evaluated using different criteria. Meta-analysis has been used to establish this finding, and thus a practicing expert may use this information as a scientific "fact" when conducting selection interviews.

Contextual Influences: While improvements in management researchers' ability to conduct statistical analysis in their studies have promoted the notion of management as a science, in some ways it has also promoted management as an art. Because of the capability to statistically analyze and interpret larger, more complex models of behavior, researchers are now testing models with this increased complexity. In particular, there is an increased emphasis on contextual influences. That is, rather than focusing solely on how behaviors are linked to outcomes, many researchers now include individual, social, and political variables in research models to have a richer understanding of behavior. Thus, there are more complex

recommendations that can be made from recent research, rather than basic "truths." For example, one of the most prominent areas of contextual research in recent years is in person-organization fit. Person-organization fit is a part of the attraction-selection-attrition model that suggests that certain types of individuals are attracted to particular organizations, selected by those organizations, and either adapt to become an effective part of the organization, or leave if they do not fit with the organization. Person-organization fit (p-o fit) is the notion that the particular skills, attitudes, values, and preferences of an individual employee should fit with those of the organization in order for that employee to have high job satisfaction and performance. The p-o fit model indicates that this fit is likely to be as important as an assessment of applicants' abilities when hiring. Previous models of selection emphasized a strict interpretation of applicant skills, with the use of valid selection tests as most important. However, the p-o fit model indicates that, even if skills and abilities have been appropriately measured, that hiring the applicant with the best skills is not always the best course of action, but that hiring an individual who fits into the culture of the organization could be more advantageous. This move towards including contextual influences in management research models promotes the notion of management as an art. Rather than indicating that there are specific principles and guidelines that can guide management practice, it suggests that managerial behavior should change based on the social and political context of the situation.

Art and Science in Management Education and Development: Management education and development, which attempt to prepare today's experts for organizational challenges, are guided by both the notion of management as an art and as a science. The approach to management education and development is likely to differ dramatically depending on the belief one has as to the nature of the practice of management. The perspective of management as an art assumes to some extent that a expert has a disposition or experiences that guide him or her in managerial decisions and activities. Thus, with this perspective, many experts may be successful without any formal education or training in management. The perspective of management as a science, however, would indicate that management skills can be taught through an understanding of theory and principles of management. Many of today's educational institutions and workplaces blend the notion of management as a science and an art in their approach to preparing employees for management. Primarily, formal management education for practicing experts, such as with bachelors and masters degrees, emphasizes the science of management. Management education in today's universities primarily emphasizes management as a science. Textbooks are used in management courses for bachelors' degrees, and these texts emphasize many of the consistent findings of many decades of management research. And, as these degrees increase in popularity, it is likely that more practicing experts will have a set of established management ideals with which they operate. While formal management education may promote management as a science, many development efforts support the notion of management as an art. To cultivate management talent, organizations offer mentoring, overseas experiences, and job rotation. These activities allow experts to gain greater social and political insight and thus rely on their own judgment and abilities to improve their management style. Much of mentoring involves behavior modeling, in which a protégé may learn nuances of managerial behavior rather than a set of specific guidelines for managing. Overseas experiences are likely to involve a great deal of expert adaptation, and the general rules by which a expert might operate in one culture are likely to change when managing workers in other countries. Finally, job rotation is a technique that

requires a expert to work in a variety of settings. Again, this encourages a expert to be flexible and adaptive, and likely rely more on his or her personal skill in managing.

Conclusion: The foundations of management as an art and management as a science are evident in today's educational institutions and work organizations. Management as a science was primarily influenced by researchers in the area of scientific management, such as Frederick Taylor, and continues today in much of the empirical research on management issues. Management as an art has been influenced by scholars such as Henry Mintzberg and Peter Drucker, and is often evident in complex theories of management. Many scholars and practitioners blend art and science to more effectively cultivate managerial talent. This is evident in recent theories of management, research in workplaces, and education and development of experts.