

Development of Post Normal Science: Sociological and Public Administrative Perspectives

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Abstract

The objective of this paper is to examine the evolution of post-normal science from the sociology and public administration perspectives. The library approach described in this article employs literature review. This article examines the notion of post-normal science, post-normal science from the sociological viewpoint, and the evolution of the science of public administration. Post-Normal Science is a method of investigation whose impartiality is not always attainable. As a consequence of the interference of rational forces, particularly politics, with objection and sensitivity, predictability and control are constrained. It is utilized to control and determine sociology's connection with the state and its funding sources. Sociology is supported for instrumental purposes in connection to societal aims, despite the fact that it is not intended to be a source of propaganda and should have its own goals, including the goal of being a science.

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Introduction

Post-normal science is a concept that was formed by the sociology of science and public administration. This idea highlights the significance of dealing with complicated and confusing issues in the current period. This idea came forth as a reaction to the trend in contemporary science to put a greater focus on rationality and objectivity, while at the same time paying less attention to the social and political factors that are associated with this knowledge.

Because post-normal science deals with issues that are often intricate and nebulous, it is very necessary to acknowledge that there is no one, definitive solution to each problem that may arise (Funtowicz & Ravetz, 1993). The development of a post-normal scientific paradigm. In the areas of science, politics, and ethics (pp. 85-123). Springer, Dordrecht. Finding answers to these issues requires taking into consideration a variety of points of view and approaches, as a result of which it is essential to do so. In addition, post-normal science places an emphasis on the need of paying attention to social and political factors while coming to conclusions and offering potential answers to the challenges that are being confronted (Luks, 1999).

The rise of post-normal science is a direct result of the shifts that have taken place in the realm of contemporary research. These shifts have a tendency to place an emphasis on rationality and objectivity rather than paying attention to the social and political dimensions of scientific inquiry (Petersen et al. 2011). This idea provides a method that is more comprehensive and all-encompassing for tackling the complicated and confusing challenges that are present in the current world.

Methods

The first stage in the data gathering approach is to conduct a review of the relevant literature. The study of literature is a method of data collection that is focused on the search for data and information through documents. These documents can take the form of written documents, photographs, images, or electronic documents, and all of these types of documents can provide support for the writing process. If the findings of the research are backed by images or by previous academic or creative work, then they will also have a greater credibility (Sugiyono, 2005). Journal articles served as our primary source material for our review of the relevant literature. Similar to how Google Scholar, Scopus, and other forms of indexing operate.

Results and Discussion

Post-Normal Science Concept

The process of inquiry that constitutes post-normal science is one in which objectivity is not always capable of being attained. Because of the presence of rational forces in the environment, particularly politics, objections and sensitivity are thwarted, and as a consequence, predictability and control are severely constrained. According to Funtowicz and Ravetz, the postnormal sciences are the ones that come into play when conditions are characterized by a high level of risk, uncertainty, and divergent values. It requires new approaches to the production and application of scientific knowledge, the expansion of peer communities (i.e., communities in which dialogue is made among all stakeholders, regardless of their official positions or qualifications), and the broadening of what are considered to be "facts" (Sardar 2000). Funtowicz and Ravetz (1992), in a nutshell, have advocated for a more expansive view of the scientific enterprise, or "the democratization of science," to put it more specifically.

Post Normal Sciences is a notion that was thought of and defined by Funtowicz and Ravetz (2003) in order to address the presence of society as well as the difficulties of ethics in the ecosystems that we investigate. In contrast to normal sciences, which don't rely on assumptions to guide their work, postnormal sciences do. Ravetz (2003) notes that postnormal sciences, in contrast to the normal sciences, which are presumed to be definite and value independent, make "uncertain systems" and "stake judgments" essential components of their analysis. As an illustration of this, consider the following: According to Funtowicz and Ravetz (2003), environmental policy falls within the category of postnormal sciences. Given the extent to which it is intertwined with the natural world, they acknowledge that environmental concerns are within the purview of the sciences. On the other hand, they continue by claiming that humans have never been and never will be "masters and proprietors of Nature." Because of the unpredictability and complexity of the environment, it is necessary to use innovative intellectual methods in order to investigate the structure and bonding of phenomena that are at the root of environmental issues. They advocate for the portrayal of knowledge in a pluralist manner, and they argue for the coupling of epistemological attitudes with suitable procedures. They reject the positivism's limited ideas as the best way to accomplish things and instead relate to ways that are wider and more inclusive. These approaches come from a variety of epistemic traditions and techniques.

Post Normal Science in Sociological Perspective

Sociology is used in the process of managing and defining its interaction with the community as well as the state. Sociology is supported in connection to societal objectives for practical reasons, but it is not meant to be a source of propaganda, and it should have goals of its own, most importantly the aim of being a science. The strange scenario is as follows: This resulted in a myriad of issues, the most notable of which was the collapse of Project Camelot (1964–

1965), especially when the instrumental aims that had been driving specific programs became contentious. However, there are more significant issues that have arisen as a consequence of sociology's position as a beneficiary of and cheerleader for the growth of the welfare state. For example, in the field of mental health, sociology and sociologists are often associated with unsuccessful initiatives or fading policy frameworks.

The term "contemporary sociological theory" is used to refer to more recent advancements in the field of sociology. These developments include the many different theoretical viewpoints that have surfaced in the field since the classical founders. Among these viewpoints are feminism, conflict theory, structural functionalism, and symbolic interactionism, to name a few (Johnson, 1986).

The decades of the 1970s and 1980s were marked by the beginning of a crisis. The number of students enrolled in the undergraduate program dropped precipitously. The depressing literature that was just discussed expresses regret at the current condition of sociology. The university in and of itself is undergoing change. An extensive literature emerged in the field of science to explain these shifts and the labels for them. This literature came up with concepts such as "Post Academic" and "Post Normal" to define the progression of science itself.

Individuals like Jerome Ravetz use the word "post-normal" in a positive meaning to define the new connection of science to policy and communal objectives, as shown in the area of ecological economics. "Post-normal" is a phrase that has been used in a positive sense by people like Jerome Ravetz (Ravetz, 2003). The practice of science has, in general, been increasingly focused on assisting customers. Merton deserves a CUDOS, as John Ziman put it.

Modern science adheres to the principles that were summed up by the sociologist Robert Merton (Merton, 1973) in the acronyms CUDOS of Communalism (common property of scientific discovery, promotes collective collaboration), Universalism (uses universal and impersonal criteria, regardless of gender, race, or religion), Disinterestedness (actions motivated by general scientific merit rather than personal gain), and Organized Skepticism. Modern science also adheres to these principles (impartial critical scrutiny, peer review). Even while it is impossible for science, which is a human cultural endeavor, to be totally objective, it nonetheless strives for objectivity and promotes methods for self-correction. In the realm of science, "facts" are not interpreted in the same way as "absolute truths," but rather as "explanations that make the greatest sense," taking into consideration observations and hypotheses that are accepted within the scientific community. As a result, it is susceptible to being superseded by other explanations in the face of new data or fresh information.

If the scientific method is not followed, for example, when alternative explanations are not considered, or when explanations are chosen simply because they conform to a particular school, then the fact in question is considered to be unscientific. This is the case even if it was disclosed by a person with a scientifically educated individual or a professional scientist. The application of this scientific practice concept was investigated in non-normal circumstances, despite the fact that it has been around for a long time and is generally recognized. In post-normal circumstances, the societal constraints that are exerted on scientific activity have an effect not only on the process of science itself but also on the results. In settings that are deemed to be post-normal, it is necessary to have the inclination to pick themes that are thought to be socially significant, and explanations that are favored are those that are compatible with the prevalent societal ideas. When it comes to climate change, for instance, the major emphasis is not on the quality of the research that is being used to guide decisions but rather on the application of knowledge in order to realize the objectives of the Paris Agreement or to postpone severe economic upheaval. In this day and age, the robustness of

research in terms of its methodological rigor (for example, its compatibility with Merton's standards) is becoming less significant than the usefulness of science and its congruence with cultural and political choices.

Paradoxically, the utility of science to inform the processes of decision-making has considerably decreased as a result of the discipline's loss of the distance, concentration, and impartiality that were traditionally considered to be its assets. To continue to be of undeniable benefit to society, particularly in terms of comprehending convoluted occurrences, even in urgent and high-stakes circumstances like the case of climate change, the scientific community needs to place a greater emphasis on the methodological rigor that serves as its greatest asset. Education of younger generations of scientists about the fundamental principles of rigorous scientific inquiry is essential (Ravetz, 2019), and more emphasis should be placed on the education of science rather than on subjects that appear to be less useful, such as the history of science or philosophy. It is even more difficult for those who are not directly dealing with scientific issues to understand the distinctive character of the scientific method. This can lead, at times, to an overestimation of the power of science and what it is able to effectively contribute to society, and at other times, it can lead to a belittling and discrediting of the results of scientific research. This polarization is increased in post-normal conditions, which are situations in which science is regarded as either fulfilling or failing to satisfy society expectations, independent of the veracity of science. This is a scenario in which this dichotomy is amplified (Funtowicz & Ravetz, 2018).

The field of science must stay confined to its proper sphere of inquiry, which is inexorably constrained by the parameters of the reality it attempts to explain. Under post-normal conditions, science has a tendency to lean toward politics because the political utility of scientific conclusions becomes more important than their scientific soundness. On the other hand, politics has a tendency to lean toward science because political decisions are presented as being based on univocal and uncertain scientific knowledge (Stempel, 1993). This bending has to be straightened out. The scientific community must center its attention on its fundamental capabilities, recognizing that scientists have broad expertise but a specialized area of expertise, and the politics of promoting open and inclusive decision-making processes that are founded on science while taking into account the ineluctable uncertainties and restricted spheres of application. When moving from the realm of science into the realm of the public or the realm of policy-making, it is important to humbly acknowledge that scientific knowledge is highly focused and therefore limited, providing only one component of all the knowledge that is required to tackle a complex problem such as climate change. Therefore, the definition of public policy and responses to complex societal challenges require the participation of not only scientists in the natural sciences, but also specialists from other fields, including the social sciences, as well as stakeholders from various domains and sectors of society, all of whom respect the limitations and the strengths of each other for the purpose of making the decision-making process more democratic and constructive.

Ziman coined the term "Proprietary, Local, Authoritarian, Commissioned, and Expert" to describe what has taken the place of CUDOS (Communism, Universalism, Disinterestedness, Originality, and Skepticism [1942] 1973). CUDOS stood for "Communism, Universalism, Disinterestedness, Originality, and Skepticism [1942] 1973." (2000). And there was a shift that took place, from a world in which independent scientists such as Michael Polanyi and Karl Popper pursued their own ideas, advancing science by rejecting orthodoxy, to a world in which consensus, conformity, and presenting a united front of expert knowledge became highly valued. In this new normal, there are famous ideologues, such as Heather Douglas (2009) and

Philip Kitcher (2000). Another significant shift took place within the institution of higher education itself. First, a Black Studies department that was purposefully committed to justifying research was established at the major institutions. This was then followed by the establishment of a Women's Studies program.

The criteria for what now constitutes a scholarship have undergone significant revisions. It is a component of a more extensive process known as "politicization." Postmodernism and other intellectual movements provide justification for rejecting the possibility of objective knowledge, and these movements undermine old solutions to the problem of separating "science" and "ideology"—indeed, they undermine ideological concepts. Postmodernism also provides justification for rejecting the possibility of knowledge that is independent of human subjectivity, and the field of science itself. This was a significant step forward for the field of sociology: previously imposed limitations on the practice of reformist sociology in educational institutions, which were previously at least ostensibly bound by academic ethics, have been eliminated. One expression or part of this movement in sociology was the development of the Sociologists for Women in Society, who assumed the role of an advocacy group. This group's mission was to promote equality for women in society. Because of a unique financial arrangement including special payments made to the magazine *Gender and Society*, the publication has developed into a powerful competitor in the industry. The organization has a remarkable success story as an organization, having achieved almost all of its stated goals in disciplines. One of these goals was to ensure that the number of women who dominate fields at the postgraduate and professional levels are equal to the number of women who dominate fields at the undergraduate level (Risman and Berube 2008).

The Development of Public Administration Science

Postnormal sciences have found use in a variety of sectors, such as ecological economics (Swedeen 2006), food safety, medicine (Kernick 2002; Laugharne and Laugharne 2002), and climate science (Laugharne and Laugharne 2002). (Bray and von Storch 1999; Saloranta 2001). In each of these areas, study and action are reliant on the inescapable value-laden choices that must be taken in the face of unpredictability. Postnormal sciences go beyond the realm of conventional research, which is predicated on absolute certainty, and instead adhere to a methodology in which the importance of the quality of the research process cannot be overstated. This significant effort is not evidence that the scientific study of public administration lacks a theory or that specialists in this subject are unable to produce a theory. Rather, it is evidence that both of these claims are false. The reason for this is because the science of public administration is an interdisciplinary field that may be used to the betterment of a nation or the general population.

The evolution of public administration in all of its myriad forms, as well as its previous applications and conceptualizations, the connection between the function and application of science and Post-Normal Science in and by the process of policy making, as well as potential future research directions on Post-Normal Science, and so on and so forth (Turnpenny et al., 2011). We were somewhat taken aback by the amount of attention that was created by this session, and we believed that this demonstrated a willingness within the academic community for more debate on Post Normal Science. The rise of postnormal science has resulted in an increased number of academics and policymakers using variations of the phrase as a shorthand for a normative approach to the way science should be done and used (Dankel et al., 2017). In addition, it was emphasized that the majority of the research published in the domains of science and technology studies, public policy analysis, political science, and evidence-based policy making is pertinent to the ideas that are presented in Post Normal Science. However,

since there is not enough work done across disciplines, there is uncertainty in nomenclature, methodologies, theoretical frameworks, and normative prescriptions.

Theoretical and empirical components of postnormal science, with the goal of fostering dialogue among the community of public administration scientists (Turnpenny et al., 2011). Clarification of the present definitions, conceptualizations, and applications of post-normal science will be accomplished by a concise examination of the history and development of post-normal science. In order to do this, we have identified five general categories of study, as well as applications, of post-normal science that have emerged over the course of the last four decades.

The primary objective is to analyze the development and present state of postnormal science and, as a result, to include the criticism of postnormal science into the procedure of formulating public policy and the conceptualization of public administration. The use of postnormal science has a positive impact on the formation of public policy. Because post-normal science quickly delivers assumptions linked to the demands of society, and policies may be employed or altered to meet the needs of society, post-normal science is advantageous.

Why not refer to the study of public administration as a "Post Normal Science" even while it is increasingly moving toward a pre-paradigm (or non-paradigm) state? The phrase "Post-normal science" refers to discoveries that have occurred after Kuhn's time (pun intended). According to Riccucci's explanation, it was developed by academics with an interest in risk assessment, a field in which neutrality in investigations "is not always possible" (Ospina, 2011).

When used in a public setting, norms that are influenced by politics make it difficult to formulate doctrines or settle on a single dominating value or standard. In addition, due to the fact that it draws from a variety of disciplines, the field of public administration is unable to build its own paradigm and approach. Because adhering to a single paradigm contributes to the perception that a society is "scientific," it is only logical for public administration to make concerted efforts to identify its own paradigmatic foundation.

It is always quite intriguing to get fresh perspectives on how science progresses from other countries. In point of fact, there is a body of work that applies this concept in the context of domains in which risk is at the core of problems needing extensive social intervention. In an environment with so much unpredictability, having technical expertise is not enough (Ravetz 1999). Because there are so many different parties involved, the dynamics of framing and negotiation become highly political. At the same time, there are a lot of very practical problems that need to be decided upon before taking any action. In this context, the term "Post Normal science" refers to the idea that normal science is not enough, that we have to move beyond it and introduce elements that go beyond the paradigmatic certainties of normal science. Specifically, the idea that we need to move beyond it and introduce elements that go beyond the paradigmatic certainties of normal science is what this term refers to.

This term is intended to differentiate between the fundamental sort of research that is carried out in a controlled environment, such as a laboratory, and the kind of science that is required to make judgments under situations of ambiguity in order to act in a muddled world of policy. The argument presupposes that the sciences used in this context have already arrived at a concluding paradigm, and that the application of their findings in a muddled setting necessitates progressing to a level that is beyond the typical scientific practice of Post Normal Science. This was an innovative kind of normal science, in contrast to what he regarded to be science during not so normal times, particularly revolutionary moments when prior paradigms were being

questioned and their assumptions were being replaced by others that were still in the process of being developed. What conclusions can we draw from this? There is no such thing as a postnormal science; rather, revolution ushers in a new period of ordinary science. As a way of arguing for a more pragmatic application of science, risk experts have coined the term "Post Normal Science" as a way to argue that traditional science, understood as merely the solving of puzzles, is not helpful enough in the contemporary high-risk context. This is why they argue that the term "normal science" should be retired.

Conclusion

The evolution of post-normal science is a reflection of the changes that have taken place in the world of modern science, which has a tendency to place an emphasis on rationality and objectivity rather than paying attention to social and political aspects. This change has led to the development of post-normal science. This idea came forth as a reaction to the trend in contemporary science to put a greater focus on rationality and objectivity, while at the same time paying less attention to the social and political factors that are associated with this knowledge. Post-normal science acknowledges that there is no one response that is definitively correct for every situation that might be faced, and it places a strong emphasis on the significance of dealing with complicated and ambiguous challenges in the current period. Finding answers to these issues requires taking into consideration a variety of points of view and approaches, as a result of which it is essential to do so. In addition, post-normal science places a strong emphasis on the need of paying attention to social and political elements while coming to conclusions and offering potential answers to the challenges that are being confronted. As a result, the growth of post-normal science provides a method that is more comprehensive and all-encompassing for dealing with the complicated and ambiguous issues that are encountered in the modern era, and it pays attention to the social and political aspects that are associated with this knowledge.

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