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Adaptive management: from ecology to public administration

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Abstract

Plants, organisms, and the environment in which they live influence one another, and on this relationship depends the survival of a species. Man recently started paying special attention to ecology: this fact has led to the development of adaptive management as an answer to the unpredictable development of the species and has also highlighted the importance of protecting the environment. This paper presents a theoretical and a practical perspective on the adaptive management which is applied in ecosystems and shows the possibilities for implementing adaptive management in public administration, thus transforming it into an adaptive administration with added use of adaptive administration theory. The aim of this work is to approach adaptive management from a historical point of view and to follow its transference from ecology to public administration. The expected result is that public managers will develop new methods to manage public administration for the benefit of the citizens.

Keywords: ecosystems, public administration, adaptive management

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1. Introduction

Man, being himself a player in the 'fight for existence', has recently realized that in order to survive he must protect plants, organisms, and the environment. To achieve this goal, one must take into consideration the unpredictable development of plants and animals, and the disrupting factors that affect the natural equilibrium. It is therefore necessary to adapt the management applied in the process of protecting the environment.

The implementation of adaptive management projects in ecosystems has been negatively influenced by different factors, a very important one being the rigidity of public institutions. In turn, public institutions are subjected to other perturbing, unpredictable factors that are similar to those in ecosystems—for instance, the environment, the citizens, the economic and political sector—and to withstand these factors there is a need to adapt to the changing environment. This situation has led to the idea of implementing adaptive management in public administration.

At the beginning of the paper, adaptive management is defined and a particular failed project is presented to show that adaptive management is based on learning from the past. Furthermore, the similarities between ecosystems and public institutions are considered and the pressures which public institutions and public managers face are analysed to see if applying adaptive management in public administration is possible. Lastly, the adaptive administration is defined and the conclusions of this paper are drawn.

The aim of this article is to help public managers to reshape public administration and learn from both theory and practice through the use of a theoretical and a practical approach to the adaptive management applied in ecosystems and in public institutions.

2. Adaptive Management Applied in Ecology

Adaptive management, according to Walters (cited in Allen, Fontaine, Pope & Garmestani, 2010) is defined as "An approach to natural resource management that emphasizes learning through management based on the philosophy that knowledge is incomplete and much of what we think we know is actually wrong, but despite uncertainty managers and policy makers must act". In essence, "adaptive management, as a process to accelerate and enhance learning based on the results of policy implementation, mimics the scientific method" (Stankey, Clark & Bormann, 2005). The main characteristics of adaptive management are accepting risk and uncertainty, experimenting, learning, monitoring and evaluating. When applying adaptive management, some barriers are met, including institutional (legal, political and socio-technological) and socio-psychological (Stankey et al., 2005).

The literature in the field of adaptive management mainly approaches concrete cases and projects.

Several of the adaptive management projects in the field of ecosystems have met with success; others have failed (Holling & Sundstrom, 2015). A failed example is the Florida Everglades where, in order to regenerate the ecosystem, an expensive and tremendous effort was made because "there was no respected, responsible leader who could survive the political games among the four jurisdictions involved—municipal, regional district, State, and Nation. No one, therefore, could continue with the responsibility to manage a transition. There were just committees of local, state and national government, combined with a good NGO, which became politically active and politically rigid" (Holling & Sundstrom, 2015).

Even with all the shortcomings which adaptive management faces when applied to ecosystems, "the concept remains an important, even essential, component of efforts to deal more effectively with today's complex, uncertain world" (Stankey et al., 2005).

3. Adaptive Management from Ecology to Public Administration

We are living “in a society where the environment, economy, society and politics are all in a turbulent relationship with each other” (Holling & Sundstrom, 2015); moreover, “the development environment of the public administration activity was compared with the life in the swamp, because of the uncertainties they are facing. In the swamp, the legs are uncertain, the direction is unclear, the land is constantly in motion, and the alligators are hungry” (Cayer, Baker & Weschler, 2010). Abels (2016) compares the organizational public system with a well-defined tree, where the trunk is the historical and hierarchical structure through which the organizational unities or the branches are well supplied with information and knowledge; the branches can also be teams that operate collaboratively but independently of the trunk in order to complete their mission.

There are similarities between ecosystems and institutional systems in all steps of the adaptive management cycle and in ecosystems in public administration. Also, there are “rigid institutions when pursuing limited options that cannot address the non-linear complexity of systems and associated concerns of affected stakeholders” (Scott-May & Field, 2004). These similarities have contributed to the appearance of studies that analyse the use of adaptive management in restoring public facilities following terrorist attacks, fires or hurricanes.

Public institutions are subjected to pressures from inside the institution due to managers that are “pushing simplistic explanations, avoiding shared discovery, ignoring uncertainty and the unknown, and are hostile to or fearful of adaptive experiments” (Holling & Sundstrom, 2015); but pressures also come from outside, these pressures exerted by the environment, the citizens, the economic and political environment. The result of these pressures materialize in the form of frustration from the public administration and from the citizens who consider public administrations as “inflexible and sometimes arbitrary, overly burdensome, and intrusive” (Mitchell & Mitchell, 2016).

Arrington (2016) concludes that the organizational structures and the management instruments are not adequate to satisfy today’s complex system, and in the public administration “there is often a perceived need for new ways for understanding problems and solutions” (Mitchell & Mitchell, 2016).

For adaptive managers to consider whether adaptive management constitutes a way to help public administration, public managers must answer a series of questions: Is there support that can help the application of adaptive management? Are there significant uncertainties in regard to actions: Does the application of adaptive management reduce uncertainty? Can we learn from feedback in the short term? Is monitoring feasible? And can a sufficiently conclusive experiment be projected to discern the effects of different management actions (Forests for Tomorrow, 2008)?

The final objective of applying adaptive management inside the public institution is to continue the transformation of the public administration from a rigid administration to an adaptive administration.

4. Adaptive Public Administration

The term ‘adaptive administration’ was introduced to describe what happens when the administration changes, when theories are influenced by practical experience and the results of practical experience are used to modify the previously used theories. To apply adaptive management inside public organizations, administrators should accomplish “five major tasks” (Mitchell & Mitchell, 2016): “administrators need to develop new ways for understanding their organizations; administrators should track the daily operations of their organizations from the points of view of each of these measures; it is helpful to prepare a list of the key measures that are being used, and to post this checklist on a smart phone, tablet, or notebook computer for easy access and referral; from this evolving list of key measures and notes, administrators may

identify potential issues that require their attention; another approach is to post daily notes of potential and actual issues that have been spotted” (Mitchell & Mitchell, 2016).

The management of public adaptive administration uses mainly administrative practice theory, Big Data and theory generators (Mitchell & Mitchell, 2016). The relationships between theory and practice in public administration are unique: theory and practice are not separate or different, but are interconnected, being two faces of the same process, and are dependent upon each other: “practice and theory must constantly evolve together in order to effectively address the changes that must be faced. Public administration is seen as a field of practice and theory” (Mitchell & Mitchell, 2016). The Big Data concept spreads throughout the entire society, and the public administration must adapt to this tendency: “the collection of digital information has grown to be so diverse and rapid that special software programs have been designed to guide incoming data into ‘storage arrays’ that can later be accessed as needed. In more recent years, the flood of incoming digital information has so increased that reference is now being made to Big Data” (Mitchell & Mitchell, 2016). The theory generator ensures “the constant collection of new information, combined with a process that produces theories about particular topics and issues” (Mitchell & Mitchell, 2016).

5. Conclusions

Similarities between ecosystems and public administration were noticed in the first paper, where the term ‘adaptive management’ applied to ecosystems was used. The activity of the public administration can be associated with life in a swamp or with a well-developed tree, so it was noted that public institutions were involved in many ecosystem projects and that these institutions are rigid. The problem when transferring the theoretical and practical stock of knowledge of applied adaptive management in ecosystems to public administration is the administrative managers that are working in public institutions, who are “pushing simplistic explanations, avoiding shared discovery, ignoring uncertainty and the unknown, and are hostile to or fearful of adaptive experiments” (Holling & Sundstrom, 2015). Public administrators must reach the conclusion that the organizational structures and the management instruments are not well suited to satisfy today’s complex environment (Arrington, 2016), and there is a need for public administration to adopt “new ways for understanding problems and solutions” (Mitchell & Mitchell, 2016) because “the adaptive system will change its coordinates and its actions across the way for achieving a goal” (Matei & Antonie, 2014). There is a need to further analyse the adaptive management applied in ecosystems (both in theory and in practice) and adaptive administration (theory) to compare the two types of management in order to find common points and solutions for adapting public administration to the current needs of citizens.

The aim of the paper is to help public managers to reshape public administration and to learn from history, from theory and from practice to achieve an adaptive public administration.

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