Review of: "Promoting Pro-Environmental Behavior for Sustainable Water Resource Management: A Social Exchange Perspective"

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Thank you for let me share some ideas about your manuscript. I consider that is an important document that can support decisions by governmental and non-governmental organizations related on water care.

Some comments that I want to share with you:

THEORETICAL FRAMEWORK

Although it focuses on the tragedy of the commons proposed by Hardin, the subsequent work on this topic developed by Ostrom on the Governance of the Commons allows us to consider other mechanisms to confront social dilemmas.

This is how Ostrom (2010), when analyzing the work developed by Hardin, known as the "tragedy of the commons," in which the use of a good describes an inexorable behavior of excessive use and destruction, points out that being carried out, under a non-cooperative perspective, hides individual or community efforts when solving social dilemmas.

METHODOLOGY

The Methodology should justify why the one implemented is the most appropriate and not another to respond to the research problem. In addition, it would be helpful to mention the mechanism for obtaining the theoretical elements.

SOCIAL DILEMMA is part of the theoretical framework. So, it should be before the methodology.

RELATING SOMETHING SAID IN PAGE 6

" *The autor belives that such mutual assistance has declined in the past two decades*"

The author should not "believe" but conjecture since he is in a scientific investigative exercise, and the statement must be proven.

Regarding Iranians engaging in selfish behavior, the examples are not very different from what happens in many other places in the world. That is, it is not necessarily an exclusive attitude of the Iranians.

RESULTS AND DISCUSSION

This bibliographic review does not discuss alternatives such as Ostrom's Adaptive Governance or other self-organized mechanisms (Bottom–up) such as swarm intelligence or social learning. Although there may be reasons why they have not been chosen, it must be clear why the results showed only those mechanisms (Ethical commitment, Rewards and punishments,... and so on) to resolve social dilemmas and not others.

Other mechanisms found in the literature are

Swarm intelligence. Maldonado (2019)

Maldonado (2019) describes it as a systemic relationship that does not talk about causalities; these only occur at local levels and controlled circumstances but rather about emergencies since there is no direct cause-effect relationship. One sees an order in which causality appears to be a probability. In this behavior, communications are permanent, and there is active participation in assemblies and meetings in which learning arises as a condition of adaptation. When this swarm of intelligence appears, the social system integrates more than individuals; concerns, goals, and objectives matter. This swarm intelligence results from a spontaneously self-organized system, which arises from the rationality of collective emergent behaviors. There is, therefore, no plan or strategy from the beginning, but rather possibilities, problems, or obstacles that allow collective intelligence, in which each individual obtains the most significant benefit by being part of the swarm and not acting individually. This emergence and self-organization explains non-linearity and allows for, for example, situations with more than one solution and strategies, such as maximization or optimization, are no longer relevant.

Axelrod (1984) suggests that, in this type of cooperative behavior, when the probability of two individuals meeting again is sufficiently high, reciprocity-based cooperation can flourish and be evolutionarily stable in a population without much kinship.

Social Learning

Cumming (2013) emphasizes social learning by "doing" through experiences in successful group processes, which must show a change in the understanding of the individuals involved. This allows this variation to go beyond individuals and incorporate many of them and community practices through social interactions and processes between actors with social networks. Therefore, in social learning, the idea persists that understandings between individuals give way to practices in the community at different levels, which are represented in a self-organization that sets in motion changes beyond each individual.

Adaptive governance

Dietz, Ostrom, and Stern (2003) propose that the requirements of adaptive governance in a complex system are: i) provide reliable information on stocks, flows, and processes with the resources of the governed system; ii) ability to manage conflicts. Significant differences in power and values between stakeholders make conflict inherent. Hence, it is convenient to promote analytical deliberation through a well-structured dialogue represented by the different actors; iii) provide infrastructure and be prepared for change. Institutions must be designed to allow for change, without very fixed

rules, and not fail to give much importance to the current state of knowledge; and iv) nesting: there must be nested institutional arrangements in several layers.

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