BIASES IN SOCIAL INTERACTION: THE ROLE OF HUMAN COGNITION IN DECISION-MAKING PROCESS

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ABSTRACT

Introducing people into participatory urban planning and the need for their active engagement is more than urgent the last decades. The purpose of this research is to focus on interaction that takes place in the social complex system of decision-making for urban planning and to address the potential barriers in communication between the actors involved in terms of the hidden biases that can lead or mislead the selection of alternatives and final decisions. The way people communicate and interact with each other plays a crucial role on the outcome of any decision making process; hence there is a need to focus on that interpersonal social frictions and the possible reasons that may affect their cognition and inevitably their behavior as what dictates a person's attitude is a subjective construction of reality based on the participant's beliefs about self and the world.

There is a recent interest in the way heuristic factors affect the flow of decision-making and the contribution of Social Psychology discipline is considered as a necessary field to evaluate the usage of communicative rationality. The implications of complexity and uncertainty in the modern society affect participatory urban planning nowadays. Our analysis is based on how these patterns relate with cognitive biases and social norms when reaching consensus or not. Introducing those, they are related with human's behavior and attitude towards individual information processing or occur within group processes concerning how people assess the reliability and supremacy of certain statements and adjust their rationality to the available resources.

The existence of these factors addresses the need to form the basis of a new rationale in terms of communicative decision-making. The idea derives from models such as heuristic systematic model or bounded rationality theory as these models try to explain how people receive and process messages and arguments in the social world. The purpose is to take into consideration the evolutionary dynamics of social complex systems in order to achieve a robust and committed participation while using the heuristics to reduce the complexity and reach less biased decisions.

Keywords: participatory urban planning; communicative rationality; social interaction; cognitive biases

1. Introduction

Participatory urban planning is a planning paradigm that emphasizes involving the entire community in the strategic and management processes in the urban field. Kurian and Ramkumar (2001) wrote about the meaning of participatory planning, which actually focuses on the process for learning rather than plunging directly into a solution, and is actually an expression of a society's political culture (SERG, 2004).The participatory challenge lies in creating shared meanings, embracing people and linking them with the state. However, although there is an enormous interest in that field there is a gap when it comes to shared understanding among the people that are engaged in the process and a lack of proper communication (Involve, 2005).The communicative turn in 1980's made it a theoretical must for urban planning as a participatory design approach can bridge this field with community development and local governance (Healey,

1997). Moving into a more communicative way of planning has more benefits and the main core values and principles are based on the involvement of everyone potentially affected by the prominent decision making seeking for citizens' input and voice in designing and promoting sustainable decisions by communicating the needs of all participants and decision-makers (Zwirner *et al*., 2008).

Moving to the need of social interaction, the open-ended pattern of social complex systems origins from the uncertainty of the future but the evolutionary dynamics of the modern society complicate the effectiveness of interaction. Due to the uncertainty of the future, the outcomes are not easily calculated and the ways the different scenarios and alternatives are evaluated depend on the quality of communication between the relevant actors and authorities. Interaction includes information exchange and a flow of knowledge through communication and deliberation. However, although there is an enormous interest in that field and many recipes that claim to enhance collaborative decision-making, there is a gap between linking the ineffective communication to the existence of cognitive biases, as many rules, ethics and norms affect the context of participation and its interaction dynamics.

Uncertainty and complexity are two major patterns of social systems and when combined with the communicative rationality that a participatory approach consists of, they affect the process of decision-making and urge for deeper exploration on how humans reach consensus or not, relying on habitual behaviors and social conventions. Combining these two aspects addresses the need to analyze the way people process information throughout complexity and uncertainty, named information processing.

2. Participatory decision-making process

Moving to the field of urban planning and collaborative approaches, the steps of a traditional participatory decision-making procedure might include the identification of a problem, moving to the second step of its analysis where ideas or alternatives are into preparation. The next one is the alternative selection, which is followed by the phase of implementation. A solution evaluation step may follow in order to assess each strategy or decision that occurred (UNCHS, 2001). Based on that traditional decision-making process, the citizen is most likely to contribute merely to the analysis of the problem and the alternative selection phase as it offers no challenges for the public to be deeper involved and participation is seen as a goal rather than a means.

A lot has been said about communication, interaction and the flow of information but a new planning dialect should take part in the planning processes based on a citizen-driven flow of interaction and information flow. That is we need to shift to new type of decision-making where citizens are both providers and recipients of information. These more dynamic and modern approaches to planning suggest that through engagement citizens can constitute a network of sharing knowledge and ideas and empower them into reaching final decisions. According to Booher and Innes (2004) citizens should get earlier engaged in decision-making, sharing their ideas and inner thoughts and achieving interaction on a voluntary basis. Collaboration should not be the end but the start for a dynamic process, which is translated here in an effective interaction among citizens.

A simple figure to illustrate the proposed decision-making framework is the one presented (Figure 1), showing how people should be the drivers of change in the whole procedure. Participatory planning is ineffective as a result of citizens' absence of engagement in an early state of planning (Booher and Innes, 2004). In that proposed approach, the focus is on the process where citizens are active actors who generate ideas. The most important stage is the exchange of ideas and thoughts between citizens and other actors as well as the constant feedback from the planning authorities and experts when a vision or a solution is defined. Additionally, the planning authorities can provide them with real-time data for a prominent project and feedback to the generated ideas, broadening citizens' scope rather than narrowing down the alternative options.

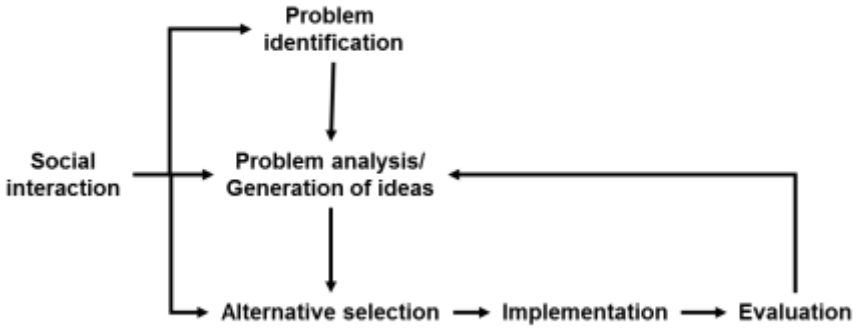

Figure 1: The interactive decision making process

In order to optimize the decision making process there is an initial need of focusing to that level of social interaction and according to the scope of this research, the main purpose is to identify the factors and conditions that may affect participants' cognition and have an impact on their communication during the whole process.

3. Addressing the hidden biases

Table 1: Matching biases with the interactive steps in decision-making process

PROCESS / BIASES	*Social Interaction*		
	Problem Definition	Problem Analysis: Generation of Ideas	Alternative Selection
Actor-Observer	●	●	
Bandwagon Effect		●	●
Confirmation	●	●	●
Congruence		●	●
Decoy Effect			●
Elimination by aspect			●
Expectation	●		
Exposure		●	●
False Memory	●	●	
False consensus	●	●	●
Focusing	●	●	●
Framing	●		
Fundamental		●	
Hindsight	●	●	
Impact		●	●
Information	●	●	●
In-group		●	●
Irrational			●
Observer-Expectancy	●	●	
Optimism	●	●	
Outcome			●
Self-Fulfilling Prophecy	●	●	
Social Desirability		●	●
Source Credibility		●	●
Status quo	●	●	●

Humans face uncertainty and challenges as being part of this modern complex world, and their behavior is directed by mechanisms that trigger due to different social stimuli and situations. According to social identity theory, when individuals interact they behave in way that can be predicted given the access to specific information. According to bounded rationality theory, one of the three factors that affect the decision making process is the existence of cognitive limitations

that affect our perception, behavior and consequently the decisions. In complex situations people process information very fast relying on heuristic processing to take decisions (Fiske *et al*., 1991). Their perception and intergroup behavior are affected by those mental mechanisms, called cognitive biases. Based on the proposed model of interactive decision-making process, there follows an attempt to match the most common biases with the various steps that have been mentioned (Figure 1).

Understanding the dynamics of social interaction, Table 1 analyzes the initial phases in decision-making process and project management, and emphasizes those where dialogue takes place among citizens, stakeholders, project managers and the planning authorities. Many of the following biases are interrelated and stem from the existence of availability, representativeness and anchoring heuristics (Tversky and Kahneman, 1974; Gilovich *et al*., 2002).

4. Processing 'Debiasing'

Due to the cognitive biases, the individual draws conclusions and makes decisions in an illogical mode. However, people use heuristic and systematic processing as a model that addresses the twofold way of receiving and processing information, messages and arguments in the social world (Chaiken, 1980; Chaiken and Trope, 1999). The heuristic approach allows the brain to make minimum cognitive effort in order to make a decision making the individual behave in a way that is accessible, applicable and available to ideas and outer influence. On the other hand, systematic approach includes comprehensive and thorough analysis of the incoming information. The individual in that mode becomes more critical, and values the validity of the information source in order to draw conclusions and make decisions (Chen *et al*., 1999).

Kahneman (2011) suggested some feasible ways to reduce these biases, while researching heuristic versus systematic information processing. According to him, the first system is an effortlessly thinking mode, while system two a deliberate, slower but more critical one. The first one is mainly responsible for decision-making, but the brain shortcuts to a more 'logical' solution for a given problem as fast as possible.

Starting with the role of project managers and planners, they have to secure an adequate level of information from the very beginning of decision-making, which will enhance the whole procedure and increase accuracy. In terms of 'debiasing', some additional steps are proposed with the guidance of an objective observer/researcher that will thoroughly detect the numerous heuristics and adopt a plan addressing the existing cognitive biases considered as more influential, something that depends on the importance of the project. Additionally, a calculation of the time that will be needed for the whole plan to be chosen and executed is of crucial importance, in order to provide time for critical feedback and evaluation-sessions. Lastly, our proposed communicative model focuses on early, voluntary, active and heterogenous citizen engagement, attempting to limit some more biases related to the level of information, citizen's responsibility and commitment to the process and creative generation of ideas.

5. Concluding remarks

In terms of urban planning and participatory approaches, interaction among individuals is a salient requirement to reach consensus and final decisions, while planners, various stakeholders and individuals are getting involved in the complex process of planning with power, responsibilities, interests and needs that vary (CIFOR, 2007). Decision-making within the framework of communicative rationality conceals a risk in terms of effective collaboration between the actors involved in the process. The way heuristic factors affect the whole process is an indispensable tool to evaluate this on-going process of communication. Linking human behavior and information processing is considered essential nowadays to avoid randomness, irrational and unconscious decisions. Taking into consideration the complex dynamics of social interaction and the suggested ways to reduce biased decisions, will eventually achieve a more interactive, participative, committed and dynamic decision-making.

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