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RESEARCH PAPER

Role of Problem Structuring Method in the Decision-Making Process in workplace Management

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ABSTRACT

The objective of this study was to assess the efficacy of Structured Objective Decision Analysis (SODA) in improving the decision-making and problem-solving abilities of teams. Using a multidisciplinary approach that includes computer simulation, cognitive design, learning strategies, and mathematical modeling tools is necessary to tackle complex challenges. The study aimed to comprehend the influence of SODA on decision-making in critical circumstances. A survey was given to 150 middle-level executives from different organizations, and statistical analysis was performed using SPSS. The study evaluated the fluctuations in individuals' self-assurance levels regarding problem-solving skills as they gained experience. It also examined the discrepancies in confidence levels across different decision-making situations and the capacity to handle uncertainty during decision-making processes. The study uncovered a robust and positive correlation between decision-making competence and the capacity to surmount obstacles. Nevertheless, there was no notable correlation found between self-perception and the capacities for problem-solving or decision-making. The study highlighted the significance of implementing systematic methodologies such as SODA in situations where important decisions are at stake. Ultimately, this research highlights the crucial significance of structured methodologies, specifically SODA, in improving decision-making and problem-solving abilities in intricate circumstances.

KEYWORDS Challenges, Decision making, Effectiveness, Improvement, Problems Structure

Introduction

Complex issues have multiple dimensions, requiring a wide range of approaches. Learning strategies, cognitive Design methods, and computational simulation and mathematical modeling are only some of the methods that can be employed in an effort to find solutions to a problem's complexities. The diversity of people's challenges calls for a wide range of methods to address them. The nature of a problem is essential to determining the best approach to solving it (Heppner & Petersen, 1982).

There are three basic categories of difficulties: puzzles, problems, and messes. In contrast, puzzles have well-defined solutions that can be put into action. There is a simple, generally agreed-upon solution to the issue at hand, and there are tried-and-true methods for getting the desired result. Nonetheless, challenges are complex circumstances for which there is no single, universally accepted solution. Whether or whether a problem can be solved depends on how one sees and understands it. A "mess" is a complex scenario with multiple players and a network of interconnected issues. Real-world challenges more often resemble a jumble than a solution to a puzzle (Adams & Hester, 2012).

Solving a problem involves thinking creatively about how to move from the current state to the desired future one. Method selection should be guided by the problem at hand rather than the available options. There is no universally applicable method for problem-solving, but there are essential conditions for achievement. Accurate issue formulation, application of appropriate procedures, selection of a reliable success indicator, and so on is all necessary for the findings to be put into practice (Heppner et al., 2004).

A practical approach to decision-making can be developed with the help of the PrOACT (Problem, Objective, Alternative, Consequence, and Trade-off) framework. Using this framework, decision-makers can more reliably select options that are more likely to provide the desired consequences and arrive at well-rounded judgments (Jackson & Keys, 1984). When trying to find a solution to a problem, it's crucial to keep complexity in mind. Complex systems typically consist of several pieces that are intricately connected to one another. In order to choose the most appropriate solutions, it is essential to be able to distinguish between technology and human/social complexity. Making a mistake is possible if the appropriate actions are not taken in a challenging circumstance (Kilmann & Mitroff II, 1979).

Finding the core ideas behind a problem is the first step in solving it. Theoretical frameworks describe several steps in the issue-solving process, including problem formulation. If someone joins the process at the "generating solutions" stage, they are quite likely to make a mistake (Dostál, 2015).

Literature Review

Problem Structuring Methods (PSM) is crucial for solving problems in today's complex and demanding world (Jackson, 2006). PSM was first proposed in the 1960s, but it didn't become widely used until the late '80s. The literature uses different terms like soft OR, problem finding, problem formulation (Lyles & Thomas, 1988), problem definition (Kilmann & Mitroff II, 1979), and exploration approach but all share a core theory. This groundwork is based on the concept of organizing and defining the appropriate issue inside a specific problematic situation(Rosenhead, 2006).

Using a variety of participatory modeling approaches, PSM as "a suite of participatory modeling techniques designed to engage a diverse group of stakeholders in addressing a complex issue of mutual concern." A collection of tools that support management groups in defining the scope and nature of problems they face, and in fostering a collective commitment to action". These methods have some things in common: they all focus on organisational and group problems, value different points of view, and put building agreement ahead of finding the best answer. A shorter explanation of PSM by calling it "a cognitive tool that helps in understanding problems"(Franco, 2007).

According to the literature, Problem Structuring Methods (PSM) help decision-makers develop a common knowledge of the issue at hand (Midgley et al., 2013). They shine in situations where stakeholders have a range of opinions, some of which may be at odds with one another (Den Hengst et al., 2007). PSMs are often used in novel scenarios that take into account particular conditions since each issue is unique and people's perception of problems varies. PSM interventions the process of achieving an adequate comprehension of a problem's elements, in order to progress to some form of practical operational research work (Mingers & Rosenhead, 2004).

"Problems are flexible and can assume various shapes and forms," which is the essential premise supporting PSM. PSM provides a framework for "depicting the situation through models, enabling participants to clarify their circumstances, converge on a potentially actionable common issue within it, and agree on commitments that, to some extent, address it". In their work, they identify five key areas where PSM is applied:

organisational settings, information systems, technology and resource planning, health services, and research (Rosenhead, 1996). The idea of Problem Structuring Methods (PSM) is that different approaches can be taken to the same problem. PSM stands for "a technique that facilitates the development of a shared mental representation of a problem or situation in order to aid in its definition, identification, and prioritization" . As was previously said, PSM is not meant to determine optimal results. Instead, it's employed in the course of talks and deals. Consensus among stakeholders can likely be achieved with the use of PSM interventions (Mingers & Rosenhead, 2004).

The five important expected outcomes of a PSM intervention, including the following: improved mental models, improved communication, consensus building, system implementation, and system improvement. A number of additional results that can be anticipated from using PSM, such as the creation of a model and problem structure, the consideration of alternative perspectives, the modification of power dynamics, the enhancement of comprehension and education, the promotion of problem ownership, the weighing of potential outcomes, and the establishment of partial commitments. The development of a structured model that may be used as a 'negotiating tool' is a notable outcome of PSM interventions (Montibeller et al., 2008).

There are multiple causes for the difficulties in the PSM community. The current academic structure, the general public's bias against qualitative methods, and the lack the practitioner's perspective, they identify the five problems: the lack of progress in PSM research in academia, the lack of interest in PSM and Soft OR among graduate students, the difficulty in developing PSM skills, the absence of support from the larger OR community, and the small size of the PSM community (Galloway et al., 2013). It's worth noting that even while success stories exist, they are typically dismissed as isolated incidents in agreement that empirical evidence is necessary to prove the effectiveness of these strategies (Collins & Ph, 2016).

The Problem Structuring Method (PSM) is widely recognized in the academic literature, especially in the United Kingdom, and can be utilized effectively in complex practical situations. Especially in the United States, PSM has not yet been widely used. It is widely held in the United States that problem-solving methodologies (PSMs) are ineffective and can only be used to structure problems (Pounds, William, 1969). People have lost faith in the ways, plain and simple. The "omission of characteristic mathematical model utilization" is just one of the many complaints made with PSM, along with its "lack of objectivity." The author agrees that PSM may be less effective, at least in the United States, because of its lack of mathematical applications (Midgley et al., 2013).

The term "Problem Structuring Methods" (PSM) is used to refer to a wide range of different ways of thinking about and solving problems. Capturing the complexities of challenging circumstances is an important goal of PSM. According to Eden (1989), Strategic Options Development Analysis (SODA) is techniques that can assist you cope with difficult challenges. When working in a group, SODA is employed when members are having difficulty isolating the source of a problem and organizing their thoughts about it. SODA is effective since it "recognizes the existence of multiple perspectives and provides a framework for structuring a problematic situation for a group" (Georgiou, 2009).

SODA is a method for helping teams gains a deeper familiarity with a topic of study. Future scenario analysis and stakeholder management are two common applications of the method. Shaw (2006) calls it a "quick and dirty approach" and a "sense-making" instrument. When SODA is used, a consensus emerges that represents the group's understanding of the information's collective qualities. The Structured Observational Data Analysis (SODA) method is a modeling tool and facilitator-led approach to problem identification. The facilitator's job is crucial because he or she must synthesize and grasp the relevance of the numerous viewpoints provided in order to help the group reach a consensus on a plan of

action. The outcomes of applying the SODA framework to acquire this level of understanding can be used to improve group communication (Rosenhead, 1996).

There is a lack of focus on the evaluation of Problem Structuring Methods' (PSM) contributions to the problem-solving process in the existing research. In order to evaluate the efficacy of qualitative methods like PSM in high-stakes, decision-making contexts, Mingers (2011) has urged for a thorough study effort. In the United States in particular, the lack of empirical data proving the efficacy of PSM may prevent its wider implementation. This study aims to close that knowledge gap by conducting an empirical investigation of PSM's effectiveness in dealing with a difficult issue. The benefits of PSM on the problem-solving process are made clearer in this study, which may have far-reaching consequences for future PSM research. This study is a short step toward the ultimate objective of enhancing decision-making and decreasing mistakes (Mingers & Rosenhead, 2004).

Material and Methods

In order to investigate the impact of a problem-structuring approach on the quality of decision-making, we administered a questionnaire. When data is systematically collected from multiple sources using a questionnaire, it's much simpler to draw comparisons between them. It's also useful for compiling the responses of the whole group and looking for trends and patterns. We communicated with individuals from different organizations through Facebook and WhatsApp, and 150 respondents completed the surveys. In order to examine the data, we employed the statistical program SPSS. By calculating the average of related responses, we also made steps to fill in any gaps in the data that may have existed. In accordance with the goals of the study, we targeted middle management personnel, believing that they would have a better grasp of the questionnaire's intent.

Results and Discussion

Age of respondents

Table 1
Age of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	20- 30	32	21.3	21.3	21.3
	30-40	86	57.3	57.3	78.7
	40-50	28	18.7	18.7	97.3
	50-60	4	2.7	2.7	100.0
	Total	150	100.0	100.0	

There are a total of 150 participants in the study. The data is classified into four age groups: 20-30, 30-40, 40-50, and 50-60. At 57.3%, those between the ages of 30 and 40 make up the largest demographic of responders. There were 21.3% of responders in the 20-30 age range. The group of people between the ages of 40 and 50 is the third largest, making up 18.7% of all responses. Between the ages of 50 and 60 have the lowest response rate (2.7%).

Gender of Respondents

Table 2
Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	114	76.0	76.0	76.0
	Female	36	24.0	24.0	100.0
	Total	150	100.0	100.0	

The table shows the breakdown of survey participants by gender. Approximately 76% of the total responses (114 out of 150) were male. However, 36 of the responses were women (24% of the total). Male respondents account for 76% of the overall percentage, while female respondents account for the remaining 24%, for a total of 100%.

Table 3
Correlation in Problem solving and Decision making

	Self-Perception	**Problem-Solving Process**	**Decision Making**	**Overcoming Challenges**
Self-Perception	1	.152	.955**	.077
Problem-Solving Process	.152	1	.064	.028
Decision Making	.955**	.064	1	.606**
Overcoming Challenges	.077	.028	.606**	1

**. Correlation is significant at the 0.01 level (2-tailed).

Along with a Pearson correlation coefficient of.606 (p <.01), the given correlation matrix shows that there is a strong positive relationship between making decisions and overcoming challenges. This means that as a person gets better at making decisions, they tend to get better at dealing with problems as well, and vice versa. Unfortunately, there isn't a statistically significant link between how you see yourself and how you solve problems, make decisions, and deal with difficulties. To be more precise, there is a.095 (p =.245) correlation between self-perception and decisions, a.077 (p =.351) between self-perception and overcoming obstacles, a.064 (p =.439) correlation between problem-solving process and decisions, and a.028 (p =.733) between problem-solving process and overcoming obstacles.

In summary, there is a significant positive relationship between decision making and overcoming challenges, but there is no significant relationship between self-perception or problem-solving process and decision making or overcoming challenges.

Conclusion

In summary, the purpose of this research was to investigate whether or not Structured Objective Decision Analysis (SODA) is useful for enhancing the decision-making and problem-solving abilities of a group. Those who are adept at making decisions also tend to be good at dealing with setbacks, according to the study's findings on the relationship between decision-making ability and adaptability. The ability to make decisions, carry them out, or overcome barriers had no connection to how one perceived themselves or how one dealt with challenges. These findings underline the value of a methodical approach like SODA for decision-making and problem-solving in critical situations. Additionally, the study underscored the need for additional research into the aspects that lead to good decision-making and problem-solving, as well as the creation of more targeted interventions to assist people and groups in developing their talents in these areas. Overall, this research shows how using problem-structuring approaches like SODA in complicated decision-making contexts can be beneficial, and how methods like these can help improve one's ability to make decisions and solve problems.

Recommendations

Organizations and individuals should think about implementing Structured Objective Decision Analysis (SODA) into their decision-making and problem-solving procedures in light of the results of this study. By providing a structured framework, SODA helps people make better judgments and deal with complex situations under pressure.

Moreover, more study is needed to pin down the precise elements that aid in sound judgment and problem-solving. If we can better understand how people make decisions and solve problems, we can design more effective interventions and training programs to help them. In sum, companies and individuals can gain greatly from using problem-structuring approaches like SODA when faced with complicated decision-making circumstances, and this method should be seriously considered as a helpful tool for strengthening these crucial talents

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