Book Reviews

STRUNZ, Ulrich G. (2001): **The Impact of Individual Expertise and Public Information on Group Decision-Making.** Wiesbaden: Springer Gabler. 185 pp. ISBN 9783658331382.

The connotation of the book *"The Impact of Individual Expertise and Public Information on Group Decision-Making"* by Dr. Ulrich G. Strunz is coupled with cognitive automatisms and personal growth. This book is a dissertation and its objective is to bring forth the decision-making arena in which multiple agents have been involved collectively. In this experiment, 180 Amazon Mechanical Turk engaged as participants. In this idea, five research questions are constructed with 10 different hypotheses. "Tower of Hanoi" (ToH) has selected a problem for the analysis. The author has demonstrated the core idea through this behavioral experiment to typify reality by measuring problem-solving performance and ill-defined problem-solving. Expertise may be the most important aspect in solving global and interrelated challenges. This book is a must-read for policymakers, policy think tanks, experts, practitioners, educators, seasoned and emerging leaders. The articulation of this thesis-cum-book is very systematic in presentation.

The author has developed argumentative for complex problem solving (CPS) discourse and convincingly assembled the debate in the contemporary world. He has built the arguments for individual and group decision-making (GDM) keeping in view the limitations, constraints, pros and cons of an online and offline behavioral experiment. The author has logically and argumentatively familiarized the readers by introducing key factors affecting the beliefs of individuals and different groups. He has established the theoretical background by providing reasonings of defined problems, ill-defined problems, complexity, uncertainty and lack of information through figurative frameworks (likewise *structure of hypothetical theory*) and measuring complexity (*system boundaries, dimensions of a complex system, feedback process)*. He used primal factors like information, environmental condition and expert knowledge with the provision of extensive literature to make the arguments strong. Moreover, the scientific contribution and in-depth knowledge of the author are reflected through the presentation of classical examples, scientific approaches, strategy, and pathways for decision-making experiments as mentioned in *Gedankenexperiment, Bayesian-inference, Flag-Run Experiment, Joyous Exploration, Microworld Experiment and Game of Life*. The empirical model description and five research objectives for well-defined and ill-defined stages at the "*Tower of Hanoi*" puzzle game are well-framed. The early four objectives focus on active and passive public information about the change in group problem-solving, impacts and hidden rules on changing routine strategy while the fifth objective emphasizes the

assessment of individual expertise performance in ill-defined problem-solving environments and domains.

The author has evolved the rationale of this experiment through scientific research. The mechanism for the assessment of the participants' routine is determined by the proportion of 'Framed logic and No Border Logic. The proportion is measured through 'ToH total' and 'ToH' in parts. There are discussed 10 hypotheses along with 10 independent and dependent variables. The experiment's dates, days, inputs and outputs with historical months and years have been delineated in order. The 180 Amazon Mechanical Turk workers participated through Amazon Mechanical Turk while data of 87 MTurk used for empirical analysis due to time constraints and limitations of online experiment in different stages well-defined and ill-defined) in this experiment (*Tower of Europe extension of Tower of Hanoi*). Five conditions are unequivocally expounded for 6 performance games and 6 initial games for practice.

The findings of the results are presented through index values, mean, averages, standard errors, standard deviations, box plots, correlations, ranges and other statistical information elaborated with given commands of the outputs. Moreover, the details, linkages and consistency of the provided results show the rigorous understanding of the author. The conditions and hypotheses related to expertise rank, logic proportion, environmental change and human error, information and logic-deviation, complete logic proportions over information, expected states and logic proportion, expected states and logic marker proportion, complete expected states, routine consistency, fundamental strategy and group performance, group expertise and logic proportions are skilfully interlinked to each other. The hypotheses are promising enough so that an association can exist between group expertise and logic deviation.

The key findings give the story that the role and impact of individual expertise in well-defined problem-solving stages have strong and significantly associated with behavior in the ill-defined stages while the experiment remained silent about group performance. The other key finding is that the gender effect has not been convinced in the male and female behaviors. However, females outperformed and showed outstanding results in strategy adaption in well-defined stages. The author has recommended that individual expertise is the key determinant in global and interconnected problems by making sure the avoidance of interpersonal communication. It has been observed that the players with high well-defined problem-solving expertise deviated less, significantly adapted to visual environmental change, higher routine consistency and behaved randomly less from their routine strategy during the ill-defined problem-solving stages. Randomly chosen five bott groups played 6 ill-defined "Tower of Europe" (ToE) settings. Furthermore, the author has also identified through results that a small deviation was observed between male and female behavior while gender effect has been disregarded and remained invisible.

The shortcomings are observed in this experiment. Each agent would always

have an input into the outcome of the collective decision, but they were unable to determine how their actions would play out. In a well-defined learning environment, agents were able to gain expertise. Later, they were involved in an unclear, metastable, and unstable decision-making domain that was either dominated by chaotic or seemingly predictable feedback. The "Tower of Hanoi" was chosen as the analytical problem since it doesn't have any numerical representations, thus avoiding the development of subjective or even objective probability by human mental models. The experiment was unable to draw any inferences about how well a group will perform, but it was astonishing how important and influential individual expertise was and it had greater predictive capacity than available public information. Online experiment with a short response time of lesser than 2 minutes overburdened by hundreds of emails. Amazon Mechanical Turks remained weak for multi-agent experiments during uncertainty. The limitations of this experiment include participants having prior knowledge or experience didn't treat in the statistical analysis. Moreover, learning of the individuals was limited due to a lack of a mechanism for how the hidden rules setting work and differentiation between simple and rich feedback. Analyses of this experiment also lack response time due to unreliable data sets.

The achievements and the strengths are the transformations of the experiment from offline to online, avoiding interpersonal communication, timing saving due to online restriction, Curiosity OI live observation and MTurks capacity to avoid server crashes. The participants who faced problems in submitting data have been compensated. Flag Run and Tower of Europe are novelties and scientific contributions in the arena of experiments that give future vision for the scientific researchers and insight for problem-solving, avoidance of cultural uncertainty, memory capacity and learning environment. The author has culminated the persuasive recommendations for an interactive stock exchange game that could be developed through the identical logic of Tower of Europe or Flag Run. Chat Window holding predefined text-passages can be used to include interpersonal communication. Moreover, an arbitrary number of agents and algorithms (due to the nature of their workability) can be applied in games for multi-dimensional decision-making. Online communication channels like 'Reddit' is recommended for MTurks. Optimization of infrastructure and software performance is highly required for response time in an online experiment that is very crucial for meaningful statistical analysis. Moreover, there should require ethical payments and a well-sound structure for the experiment.

The message between the line is that author has tried to figure out the best ways how to achieve the best decision-making keeping in view the capacity of human beings. The empirical results give the message that environmental conditions from region to region, society to society and community to community vary. Moreover, the author has also given the best opportunity for the businessmen to ameliorate their management to safeguard sustainable efficiency. The author is a deep thinker and it is reflected through his in-depth

knowledge presentation. This thesis-cum-book has addressed the specific community of scientific class rather than ordinary educated readers. There are targeted specific age groups and regions. It is recommended that the simple language rather than scientific, lessons-oriented discussion rather than empirical results inclusion and exemplifying the lessons with other lessons-oriented research studies in this classical work in order to expand the readers. The author has tried to address the educated class and community. He has given the flavor of experimental behavior to educationists, business managers, policymakers and policy executors.

Liubin Zhang
School of Marxism,
Xi'an Jiaotong University

Kuan Lu
Humanities College,
Xi'an Technological University

DOI: https://doi.org/10.31577/ekoncas.2022.06.05