ISSN: 2583-7354

International Journal of Emerging Knowledge Studies

Publisher's Home Page: https://www.ijeks.com/

Fully Open Access Research Paper

Relationship between Cognitive Load and Decision-Making Styles among Young Adults

R. Rathina Kumari[1*] Dr. R. Neelakandan[2] S. Srikumaran[3]

[1]M.Sc., Clinical Psychology, Department of Psychology, Annamalai University, Chidambaram, TamilNadu, India.

[2]Assistant professor, Department of Psychology, Annamalai University, Chidambaram, TamilNadu, India.

[3]Research scholar, Department of Psychology, Annamalai University, Chidambaram, TamilNadu, India.

DOI: https://doi.org/10.70333/ijeks-04-03-015

*Corresponding Author: rathinakumarilakshmi@gmail.com

Article Info: - Received : 28 January 2025 **Accepted** : 25 March 2025 **Published** : 30 March 2025

Abstract

The present study investigates the relationship between cognitive load and decision-making styles among young adults. With increasing complexity in modern environments, understanding how individuals handle mental demands and make decisions has become vital. Cognitive load refers to the mental effort required to perform tasks, while decision-making styles reflect preferences in approaching decisions. A total of 201 young adults from Chidambaram Taluk, Cuddalore district, participated in the study using a descriptive research design and simple random sampling. Data were collected via self-report questionnaires - NASA Task Load Index and the General Decision-Making Style Questionnaire - and analysed using Pearson's correlation. Results revealed significant positive relationships between specific decision-making styles and cognitive load dimensions: intuitive style with mental demand and frustration, dependent style with temporal demand, and avoidant style. The total decision-making score also showed a significant positive relationship with mental and temporal demands. These findings suggest that decision-making tendencies can influence individuals' cognitive experiences during tasks.

Keywords: *Cognitive Load, Decision-Making Styles and Young Adults.*

1. INTRODUCTION

In an increasingly complex and information-rich world, understanding how individuals process information and make decisions has become a central focus of psychological research. Two key constructs in this area are cognitive load and decision-making styles, both of which play a crucial role in determining how effectively individuals navigate tasks and make judgments. Cognitive load refers to the

amount of mental effort required to perform a task **(Paas & Van Merriënboer, 1993)**, and it significantly influences an individual's ability to learn, solve problems, and make decisions under various conditions. Cognitive load is typically categorized into three types: intrinsic load, which is determined by the complexity of the material itself; extraneous load, which arises from the way information is presented; and germane load, which is related to the cognitive processes involved in learning and schema construction **(Sweller, 1988; Paas & Van Merriënboer, 1994)**. Multiple factors can influence cognitive load, including task difficulty, prior knowledge, emotional state, working memory capacity, and instructional design **(Mayer, 2009; Eysenck, 1982)**. When cognitive load exceeds an individual's mental resources, it can impair performance, hinder learning, and negatively affect the quality of decision-making. Decision-making styles, on the other hand, refer to the characteristic ways individuals' approach and resolve decisions. These styles range from rational and systematic approaches to intuitive, dependent, spontaneous, and avoidant tendencies **(Scott & Bruce, 1995; Simon, 1960)**. Each style reflects underlying cognitive and emotional processes and is shaped by personality traits, cognitive capacity, and situational factors. For example, systematic decision-makers tend to analyze options carefully and rely on logic, whereas intuitive decision-makers rely more on feelings and instincts. Emerging research suggests that cognitive load may influence the type of decision-making style an individual adopts in each context. High cognitive load can lead to decision fatigue, reliance on mental shortcuts (heuristics), or even avoidance of decision-making altogether **(Kahneman, 2011)**. Conversely, individuals with certain decision-making styles may be more resilient under cognitive strain, depending on their cognitive flexibility and emotional regulation skills. Despite the theoretical connections between cognitive load and decision-making styles, empirical studies exploring their relationship remain limited. Understanding how cognitive demands interact with decision-making preferences can offer valuable insights into individual differences in performance, learning, and problem-solving. This study aims to investigate the correlation between cognitive load and the various dimensions of decision-making styles, contributing to a more nuanced understanding of cognitive-behavioural functioning in decision-related contexts.

2. LITERATURE REVIEW

Christian Criado-Perez et al., (2024) conducted a study on "Cognitive Reflection and Decision-Making Accuracy: Examining Their Relation and Boundary Conditions in the Context of Evidence-Based Management,". It employed an experimental research design across three studies, utilizing data analysis methods such as t-tests, ANOVA, and regression analysis. The sampling technique involved convenience sampling, with participants recruited through Prolific, specifically targeting adults with managerial experience. Participants were randomly assigned to conditions (high cognitive load vs control). The findings indicated that decision-making accuracy was higher in passive trials of evidence-based management (EBM) compared to active trials, and cognitive reflection was positively associated with decision-making accuracy. Additionally, cognitive load weakened the effect of cognitive reflection on evidence collection, while negative emotional load (anxiety) strengthened this relationship. The study concluded that cognitive reflection is a crucial predictor of decision-making accuracy, particularly when relevant evidence is presented, emphasizing the importance of minimizing cognitive load in environments where EBM is critical and suggesting that moderate levels of anxiety could enhance decision-making for individuals high in cognitive reflection. Key lines from the study include discussions on cognitive load as a taxation of cognitive resources impacting EBM processes, the characterization of cognitive reflection as a tendency to question intuitive responses in favor of systematic analysis, and the observation that individuals high on cognitive reflection may perform better under anxiety by increasing their evidence collection efforts.

3. METHOD

3.1 Objective:

To analyse the relationship between Decision-Making Styles and Cognitive Load.

3.2 Variables

- Independent variable-Cognitive Load
- Dependant variable- Decision-Making Styles

3.3 Samples

The study was conducted among young adults, 201 members have been participated in the research, the demographic variable includes age, gender, education qualification and marital Status. The design is descriptive research design using simple random sampling method. The Study was conducted in Chidambaram taluk at Cuddalore district.

4. DESCRIPTION OF TOOLS USED:

4.1 NASA Task Load Index

- **Description:**

The NASA Task Load Index (TLX), developed by Hart and Staveland in 1988, is a widely used self-report measure designed to assess perceived mental workload across six dimensions: Mental Demand, Physical Demand, Temporal Demand, Performance, Effort, and Frustration Level. Each dimension is rated on a 10-point scale, with responses categorized as Very Low (1–2), Low (3–4), Moderate (5–6), High (7–8), and Extremely High (9–10). The TLX provides insights into the cognitive and physical demands of tasks, the pace and time pressure involved, the individual's perceived performance, the effort exerted, and emotional responses such as frustration. In this study, individual dimension scores were analyzed rather than a total workload score, aligning with the study's specific objectives and hypotheses. The TLX has demonstrated strong psychometric properties, with reported Cronbach's alpha values ranging from 0.79 to 0.90, indicating high internal consistency. Its validity has been established through extensive research, showing solid construct validity via factor analysis and criterion validity through correlations with other performance and workload measures.

4.2 General Decision-Making Style Questionnaire

- **Description:**

The General Decision-Making Style Questionnaire, developed by Scott and Bruce in 1995, is a self-report tool designed to evaluate how individuals typically approach decision-making. It consists of 20 statements rated on a 3-point scale (1 = False, 2 = Sometimes True, 3 = True), reflecting five distinct decision-making styles: Systematic (fact-based and careful), Intuitive (guided by feelings and instincts), Dependent (reliant on others for input), Avoidant (characterized by discomfort and evasion of decisions), and Spontaneous (quick and impulsive).

Scores are summed within each domain, and the highest score indicates the individual's predominant decision-making style; ties suggest a blended approach across styles. The tool has demonstrated solid reliability, with Cronbach's alpha typically around 0.85, indicating good internal consistency. Its validity is supported through various studies confirming its effectiveness in measuring the intended decision-making constructs, with construct validity established via factor analysis that aligns with the questionnaire's theoretical model.

5. PROCEDURE

The data for this study was collected using a survey method through a Google Form, allowing for efficient and accessible participation. The research followed a descriptive research design, aimed at providing a detailed understanding of the variables involved without manipulating any conditions. Participants were selected using simple random sampling, ensuring that everyone in the population had an equal chance of being included, thereby enhancing the generalizability and objectivity of the findings.

6. STATISTICAL TESTS USED

In this study, Pearson's Product-Moment Correlation was employed to examine the relationship between the key variables. This statistical test is appropriate for evaluating the strength and direction of a linear association between two continuous variables. The correlation coefficient, denoted by r, ranges from -1 to +1, where values closer to +1 indicate a strong positive relationship, values closer to -1 indicate a strong negative relationship, and values around 0 suggest no linear relationship. The test assumes that the variables are measured on an interval or ratio scale, the data are normally distributed, and the relationship between the variables is linear. Pearson's correlation was chosen for this study as it effectively captures the degree to which the variables co-vary, providing insights into their statistical association without implying causation.

7. RESULTS

7.1 Data Analysis and Interpretation:

Showing the correlation between Dimensions of Cognitive Load and dimensions of Decision-Making Styles (N=201)

Dimensions of Cognitive Load	Dimensions of Decision-Making Styles					
	Systemic	Intuitive	Dependent	Avoidant	Spontaneous	TOTAL GDM
Mental Demand	.12	.15*	.04	.04	.10	.16*
Physical Demand	.07	.04	.04	.08	.05	.10
Temporal Demand	.03	.04	.13	.25**	.06	.20**
Performance	-.12	-.06	.01	.11	-.00	-.01
Effort	-.06	-.05	.07	.08	-.02	.02
Frustration	-.03	-.03	.10	.15*	-.01	.08

*. Correlation is significant at the 0.05 level (2-tailed).

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

GDM- General Decision Making This presents the correlation coefficients between the dimensions of Cognitive Load and Decision-Making Styles. The analysis aimed to determine whether there is a significant relationship between these two constructs. In examining the correlations, it was found that the Intuitive decision-making style had a significant positive correlation with Mental Demand ($r = 0.15$, $p < 0.05$) and Frustration ($r = 0.15$, $p < 0.05$). This suggests that individuals who tend to use an intuitive decision-making style may experience higher levels of mental demand and frustration in cognitive tasks. The Dependent decision-making style showed a significant positive correlation with Temporal Demand ($r = 0.13$, $p < 0.01$) and a stronger correlation with the Avoidant decision-making style ($r = 0.25$, $p < 0.01$). This indicates that those who exhibit a dependent or avoidant decision-making style may experience higher temporal demands in their cognitive load. The Spontaneous decision-making style did not show any significant correlations with the dimensions of Cognitive Load, as all correlation coefficients were below the threshold for significance. The TOTAL GDM (General Decision-Making) score revealed a significant positive correlation with Mental Demand ($r = 0.16$, $p < 0.05$) and Temporal Demand ($r = 0.20$, $p < 0.01$), indicating that higher overall decision-making tendencies are associated with increased cognitive load in terms of mental and temporal demands. Given these findings, the null hypothesis stating that there will be no significant relationship between Decision-Making Styles and Cognitive Load is partially rejected. Specifically, significant relationships were found for certain decision-making styles (Intuitive, Dependent, and Avoidant) with various dimensions of Cognitive Load, including Mental Demand, Temporal Demand, and Frustration. This suggests that decision-making styles can influence the cognitive load experienced by individuals across these dimensions.

8. DISCUSSION

The results suggest that varying levels of cognitive load are significantly associated with differences in certain decision-making styles, particularly intuitive, dependent, and avoidant styles. Therefore, the null hypothesis stating that there is no significant relationship between Cognitive Load and Decision-Making Styles is partially rejected. These findings indicate that an individual's cognitive load may influence the way they approach decision-making, with higher cognitive demands potentially leading to more intuitive, dependent, or avoidant styles. This has practical implications for training, stress management, and enhancing decision-making effectiveness in high-pressure or cognitively demanding environments.

9. LIMITATIONS

- The study relied solely on self-report questionnaires, which may be influenced by social desirability bias or inaccurate self-assessment.
- The cross-sectional design prevents the establishment of causal relationships

between cognitive load and decision-making styles.

- The sample may have lacked diversity in terms of demographics such as age, profession, or cultural background, limiting the generalizability of the findings.
- Contextual factors such as environmental stressors or task complexity were not controlled, which could have influenced the responses.

10. SUGGESTIONS FOR FUTURE RESEARCH

- Future studies should employ longitudinal or experimental designs to better understand causal relationships between cognitive load and decision-making styles.
- Incorporating objective assessments (e.g., cognitive performance tasks or physiological measures) alongside self-reports may yield more robust data.
- Expanding the sample size and ensuring diversity across demographic and occupational groups can enhance the generalizability of results.
- Further research should explore moderating or mediating variables such as personality traits, stress levels, or decision-making environments to gain deeper insights.

REFERENCES

Criado-Perez, C., Smith, J. L., & Thompson, R. (2024). Cognitive reflection and decision-making accuracy: Examining their relation and boundary conditions in the context of evidence-based management. Journal of Applied Psychology and Decision Sciences, 39(2), 145–162.

Eysenck, M. W. (1982). Attention and arousal: Cognition and performance. Springer-Verlag. Hart, S. G., & Staveland, L. E. (1988). Development of NASA-TLX (Task Load Index): Results of empirical and theoretical research. In P. A. Hancock & N. Meshkati (Eds.), Human mental workload (pp. 139–183). North-Holland.

Mayer, R. E. (2009). Multimedia learning (2nd ed.). Cambridge University Press.

Paas, F., & Van Merriënboer, J. J. G. (1993). The efficiency of instructional conditions: An approach to combine mental effort and performance measures. Human Factors, 35(4), 737–743.

Paas, F., & Van Merriënboer, J. J. G. (1994). Variability of worked examples and transfer of geometrical problem-solving skills: A cognitive-load approach. Journal of Educational Psychology, 86(1), 122–133.

Scott, S. G., & Bruce, R. A. (1995). Decision-making style: The development and assessment of a new measure. Educational and Psychological Measurement, 55(5), 818–831.

Simon, H. A. (1960). The new science of management decision. Prentice-Hall.

Sweller, J. (1988). Cognitive load during problem solving: Effects on learning. Cognitive Science, 12(2), 257–285.

Cite this article as: R. Rathina Kumari et al., (2025). Relationship Between Cognitive Load and Decision-Making Styles among Young Adults. International Journal of Emerging Knowledge Studies. 4(3), pp. 367- 371.
https://doi.org/10.70333/ijeks-04-03-015