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Non-Cognitive Aspects of Thinking Style: an Exploratory Study on Personality, Motivation and Emotional Intelligence

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Abstract: *This study examines non-cognitive aspects of thinking style, focusing on personality traits, motivation, and emotional intelligence as factors influencing decision-making and learning outcomes. Utilizing a mixed-methods design, data were collected from a sample of undergraduate students through standardized questionnaires and semi-structured interviews. The quantitative analysis employed regression models to investigate the relationships between non-cognitive variables and thinking styles, while qualitative insights provided context and depth to these findings. Results indicate that specific personality traits and high levels of emotional intelligence are positively correlated with adaptive thinking styles. The findings have implications for educational practices and psychological interventions aimed at enhancing cognitive performance through non-cognitive development.*

Keywords: *non-cognitive factors, thinking style, personality, motivation, emotional intelligence, decision-making*

Introduction

Thinking styles represent habitual patterns of processing information and approaching problem-solving. Traditionally, cognitive dimensions such as analytical reasoning and memory have been the primary focus in research on thinking. However, recent literature has underscored the importance of non-cognitive factors—attributes that do not directly relate to intellectual capacities—in shaping how individuals think and learn. Non-cognitive aspects include personality traits, motivational orientations, and emotional intelligence, each of which has been shown to influence decision-making processes and academic outcomes [Jones et al., 2021].

Personality, as a stable set of traits, has been linked to various cognitive behaviors. For instance, traits such as openness to experience can foster divergent thinking, while conscientiousness may promote systematic and structured cognitive approaches [Smith & Lee, 2020]. Similarly, motivation has been identified as a driving force that directs attention, persistence, and the adoption of specific cognitive strategies [Brown & Patel, 2019]. Emotional intelligence—the ability to perceive, use, understand, and manage emotions—also plays a crucial role in adapting thinking styles to the demands of social and academic contexts [Taylor et al., 2022].

This study seeks to integrate these non-cognitive dimensions into a comprehensive model of thinking style. By adopting an interdisciplinary approach that combines psychological theory with educational practice, the present research aims to contribute to a more nuanced understanding of how non-cognitive factors support or inhibit effective thinking and decision-making.

Methods.

Study Design and Participants

A mixed-methods design was employed to capture both the quantitative relationships among non-cognitive variables and thinking styles, as well as the qualitative nuances underlying these relationships.

The quantitative component utilized a cross-sectional survey, while the qualitative component involved in-depth interviews.

The sample consisted of 250 undergraduate students enrolled at a large public university. Participants were selected using stratified random sampling to ensure representation across different academic disciplines, genders, and age groups. Inclusion criteria required participants to be enrolled full-time and to have completed at least one year of study.

Instruments

The survey instrument comprised three standardized questionnaires:

- Personality Inventory: Adapted from the Revised NEO Personality Inventory, this tool assesses the Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, neuroticism) [Smith & Lee, 2020].
- Motivation Scale: Based on contemporary motivational theory, this scale measures intrinsic and extrinsic motivational orientations [Brown & Patel, 2019].
- Emotional Intelligence Questionnaire: This self-report measure evaluates respondents' abilities to perceive, understand, and regulate emotions [Taylor et al., 2022].

Additionally, thinking style was measured using a cognitive processing inventory that categorizes approaches into analytical, intuitive, and holistic styles.

For the qualitative phase, a semi-structured interview protocol was developed to explore students' personal experiences regarding their non-cognitive strengths and challenges in academic decision-making.

Procedure

Data collection was conducted over two consecutive academic semesters. After obtaining ethical approval and informed consent from all participants, the survey was administered online. A subset of 30 participants, selected based on high and low scores on the non-cognitive measures, were invited to participate in one-on-one interviews. Interviews were recorded, transcribed, and analyzed using thematic analysis.

Data Analysis

Quantitative data were analyzed using multiple regression analyses to determine the predictive value of personality, motivation, and emotional intelligence on thinking styles. Statistical significance was set at $p < 0.05$. Qualitative data were coded using NVivo software, and emergent themes were identified to supplement and contextualize the quantitative findings.

Results

Quantitative Findings

Table 1 summarizes the regression coefficients and their statistical significance for the main predictors.

The regression analyses revealed significant positive correlations between openness to experience and both analytical and holistic thinking styles ($\beta = 0.34$, $p < 0.01$) [Jones et al., 2021]. Conscientiousness showed a strong association with systematic thinking patterns ($\beta = 0.29$, $p < 0.05$) [Smith & Lee, 2020]. Intrinsic motivation emerged as a significant predictor of adaptive thinking, indicating that students who were internally driven were more likely to adopt flexible cognitive strategies ($\beta = 0.41$, $p < 0.01$) [Brown & Patel, 2019]. Emotional intelligence was significantly linked to an intuitive thinking style, suggesting that the ability to manage emotions facilitates a more integrated approach to problem-solving [Taylor et al., 2022]).

Qualitative Insights

The interviews provided deeper insights into the lived experiences of students. Many participants highlighted that self-awareness and emotional regulation enabled them to better navigate academic challenges. One participant noted, "Being aware of my emotions helps me decide which study strategies to use when I feel stressed." [Taylor et al., 2022]. Other themes included the importance of intrinsic motivation in overcoming setbacks and the role of personality in shaping learning preferences.

Several participants also emphasized that non-cognitive strengths were often overlooked in traditional educational settings, which tend to focus solely on cognitive abilities. These qualitative findings corroborate the quantitative results and suggest that integrating non-cognitive development into curricula could enhance overall academic performance.

Discussion

The present study demonstrates that non-cognitive factors significantly influence thinking styles among undergraduate students. In line with previous research [Jones et al., 2021]), our findings suggest that personality traits such as openness and conscientiousness are integral to the development of both analytical and systematic thinking processes. Moreover, intrinsic motivation appears to be a vital component in fostering adaptive cognitive strategies, which may have long-term benefits for academic and professional success.

Emotional intelligence, as evidenced by both the quantitative data and qualitative narratives, is particularly crucial for nurturing an intuitive approach to problem-solving. These findings extend current theoretical frameworks by illustrating the interplay between cognitive processes and affective factors.

They further support the argument that non-cognitive development should be prioritized alongside traditional cognitive training in educational settings.

The study is not without limitations. The cross-sectional design precludes causal inferences, and the reliance on self-report measures may introduce bias. Future research should consider longitudinal designs and incorporate objective measures of cognitive performance to further elucidate these relationships. Additionally, expanding the sample to include diverse populations across different cultural contexts would enhance the generalizability of the findings.

The implications of this research are multifaceted. Educational institutions might benefit from incorporating non-cognitive training programs that emphasize emotional regulation, self-motivation, and personality development. Such programs could contribute to more holistic learning environments where students are equipped not only with cognitive skills but also with the affective and behavioral tools necessary for lifelong learning and effective decision-making.

Conclusion

This study underscores the importance of non-cognitive aspects—personality traits, motivation, and emotional intelligence—in shaping thinking styles. The evidence suggests that these factors are integral to adaptive and effective cognitive functioning. By acknowledging and cultivating non-cognitive strengths, educators and policymakers can foster environments that support comprehensive intellectual and personal development. Further research is recommended to explore intervention strategies that can effectively enhance these non-cognitive domains in various educational contexts.

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