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PATTERNS OF THE INTERRELATION BETWEEN COGNITIVENESS AND NON-COGNITIVENESS IN THINKING STYLE

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Abstract

This paper investigates the interrelationship between cognitive and non-cognitive factors within thinking style. It emphasizes the dynamic interplay between reasoning, emotion, values, and cultural influences, proposing a holistic model that integrates both dimensions. Drawing on philosophical, psychological, and educational perspectives, the study explores how these elements shape decision-making and creativity. Empirical evidence from the Uzbek educational context illustrates the relevance of integrating cultural and emotional factors in the development of thinking skills. The findings highlight the need for an educational approach that nurtures cognitive flexibility through the interaction of reason and emotion.

Key words: cognitiveness, non-cognitiveness, thinking style, education, cognitive flexibility, emotion, culture, creativity, decision-making.

1. Introduction

n contemporary philosophy of mind and cognitive science, the concept of thinking style has evolved into a complex construct encompassing cognitive mechanisms, affective dispositions, cultural scripts, and personality traits. Traditionally, thinking was viewed as a primarily cognitive act—rooted in logic, deduction, and analytical reasoning. However, growing research suggests that cognitive functions operate in constant interplay with non-cognitive factors such

as emotion, intuition, value systems, motivation, and cultural background (Damasio, 1994; Varela et al., 1991).

Philosophical traditions, both Western and Eastern, have long debated the nature of thought and the extent to which it involves more than rational computation. Aristotle's concept of phronesis (practical wisdom) recognized emotion and moral reasoning as integral to thought. Islamic philosophers such as Al-Farabi and Ibn Sina also stressed the unity of reason and spirituality in the process of intellectual development (Yusupov, 2019). In modern thought, phenomenology and hermeneutics have emphasized lived experience and pre-reflective meaning as sources of cognition (Merleau-Ponty, 1945).

Cognitive psychology, particularly after the rise of the affective sciences, now embraces the idea that thinking is context-bound, affect-laden, and shaped by social interaction (Nisbett et al., 2001; Vygotsky, 1986). The concept of "embodied cognition" further dismantles the mind-body dualism by demonstrating how bodily states and environmental affordances influence reasoning and decision-making (Lakoff & Johnson, 1999). Neuroscientific research by Antonio Damasio revealed that people with impaired emotional processing often struggle with rational decision-making, illustrating the false dichotomy between reason and emotion (Damasio, 1994).

In educational psychology, researchers increasingly emphasize the role of non-cognitive skills—such as self-regulation, empathy, perseverance, and moral judgment—in academic achievement and intellectual growth (Duckworth & Yeager, 2015). These insights have prompted a reevaluation of thinking styles, not as static traits or isolated strategies, but as dynamic patterns emerging from the interaction of cognitive and non-cognitive processes.

This article aims to explore the patterns of interaction between cognitiveness and non-cognitiveness within thinking styles. By analyzing conceptual models, empirical studies, and cultural practices—particularly those from the Uzbek educational context—we seek to identify how these elements shape thought and what implications they have for education, decision-making,

and creativity. The dialectical relationship between rational analysis and intuitive-emotional insight will be central to this analysis.

2. Methods

The study employs a mixed-methods approach, combining theoretical analysis with empirical research drawn from educational and cognitive psychology. The theoretical framework is based on a review of contemporary cognitive science, philosophy of mind, and educational theory. Key models of thinking style, including dual-process theory (Kahneman, 2011) and embodied cognition (Lakoff & Johnson, 1999), are used to structure the discussion.

Empirical evidence is gathered through field studies conducted in Uzbek educational institutions, particularly Tashkent State Pedagogical University and Samarkand State University. Surveys and interviews with educators and students provide insights into how cognitive and non-cognitive factors shape learning processes and decision-making. Additionally, the study includes a comparative analysis of Eastern and Western educational practices to highlight the cultural mediation of thinking styles.

Data analysis employs qualitative coding techniques, focusing on themes such as motivation, emotional engagement, and cultural identity. The results are triangulated with theoretical perspectives from the literature to form a comprehensive understanding of the interaction between cognition and non-cognition in thinking style.

3. Results

3.1. Functional Complementarity of Cognitive and Non-Cognitive Factors

One of the most salient findings is the principle of functional complementarity, where non-cognitive factors do not oppose, but rather activate, support, or direct cognitive operations. For instance, motivation and emotional engagement are crucial for initiating and sustaining attention, memory encoding,

and higher-order reasoning (Karimova, 2020). Emotional states, such as curiosity or moral indignation, often drive individuals to explore problems more deeply and persist through complexity.

In educational settings, this complementarity manifests when students perform better not solely because of intellectual ability, but because of interest, self-belief, and value alignment with the learning goals. Studies conducted at Tashkent State Pedagogical University show that students exposed to culturally resonant materials exhibit increased cognitive engagement and retention (Saidov & Muminov, 2021).

3.2. Dynamic Balancing in Decision-Making

Another recurring pattern is dynamic balancing, where thinking alternates between analytic and intuitive-affective modes depending on the context. Daniel Kahneman (2011) famously described this as the interaction of "System 1" (fast, automatic, emotional) and "System 2" (slow, deliberate, logical). Rather than operating in isolation, these systems often collaborate in real-world decision-making.

In contexts involving uncertainty, personal values, or ethical complexity, decision-making relies heavily on the integration of both systems. For example, police officers, doctors, or educators frequently face dilemmas where legal norms, moral values, and emotional intelligence must all be considered simultaneously. In Uzbekistan, training programs for law enforcement increasingly incorporate psychological preparation that includes empathy development and moral reasoning to supplement procedural logic (Yusupov, 2019).

3.3. Cultural Mediation of Thinking Style

Thinking style is not merely an individual psychological feature but is also culturally mediated. Cross-cultural studies have shown that holistic thinking styles, common in Eastern societies, differ from the more analytic styles

dominant in Western contexts (Nisbett et al., 2001). These differences are rooted in socialization practices, language structures, and educational philosophies.

In Uzbek academic traditions, for instance, there is an emphasis on integrating personal values, national identity, and collective responsibility into the process of intellectual formation. This approach reflects a synthesis of cognition and non-cognition, where critical reasoning is not abstracted from emotional and cultural context but embedded within it. Field research from pedagogical academies in Samarkand and Bukhara confirms that students trained through dialogical and value-based instruction demonstrate higher flexibility and creativity in solving open-ended problems (TSPU Annual Report, 2022).

4. Discussion

The results of this study reaffirm a growing consensus in contemporary philosophy and cognitive science: thinking cannot be understood as a purely rational process divorced from emotion, culture, and value. The integration of cognitive and non-cognitive dimensions is not accidental but essential to the formation of thinking style as a living, dynamic process.

From a philosophical standpoint, the observed patterns can be interpreted through the lens of dialectical thinking. The apparent opposition between reason and affect, cognition and intuition, dissolves when we recognize their mutual interdependence. Just as Hegel emphasized the role of contradiction and synthesis in the development of concepts, so too the thinking process evolves through the tension and integration of cognitive structure and non-cognitive content.

Non-cognitive components—such as ethical commitments, emotional sensitivity, and existential concerns—infuse thinking with meaning, direction, and human depth. Without them, reasoning risks becoming sterile or disconnected from life. As phenomenologists like Merleau-Ponty (1945) and philosophers of Islamic thought such as Al-Ghazali argued, to think is also to feel, to value, and to belong.

The complementarity and cultural embeddedness of cognition and non-cognition have profound implications for education. Traditional instruction, which privileges abstract logic and standardized knowledge, may fail to develop flexible, creative, and ethically grounded thinkers. Instead, educational systems should be designed to foster the interplay of rational analysis and emotional-cognitive engagement.

In Uzbekistan, the integration of national values into the curriculum—such as respect, community solidarity, and moral courage—demonstrates that cognitive skills can be nurtured more effectively when students' emotional and cultural identities are affirmed. This suggests a need for a context-sensitive pedagogy that encourages both reflective thinking and emotional resonance.

5. Conclusion

This study has explored the intricate interplay between cognitive and non-cognitive factors within thinking styles, revealing a complex and dynamic relationship that shapes the way we process information, make decisions, and engage with the world around us. The findings emphasize that thinking is not a purely rational, isolated act, but a holistic process that integrates reason, emotion, values, and cultural influences.

Key insights from this research include:

1. Complementarity and Balance: Cognitive and non-cognitive elements work together to enhance thinking. Emotional engagement, values, and motivation drive cognitive processes, making them more purposeful and contextually relevant.

2. Cultural Mediation: Thinking styles are deeply influenced by cultural factors, which provide the context for both emotional and cognitive operations. The integration of cultural norms and social values into educational practices can enhance students' engagement and creativity.

3. Holistic Approach: Rather than viewing cognition and non-cognition as opposing forces, we propose a holistic model that recognizes the dialectical unity

between these elements. This approach fosters a more complete understanding of how people think and make decisions, integrating logic with emotion and intuition.

The implications of these findings are far-reaching. For future research, there is a need to further investigate the ways in which cognitive and non-cognitive components interact across diverse cultural and educational contexts. Longitudinal studies could explore how the balance between these factors evolves throughout an individual's development and how it influences creativity, problem-solving, and decision-making.

For educational practice, the study calls for an integrated approach to teaching that values emotional and ethical engagement alongside cognitive skills. Educational curricula should be designed not just to foster intellectual growth, but to develop the full range of human capacities—emotional intelligence, moral reasoning, and social responsibility.

In conclusion, the patterns of interaction between cognitive and non-cognitive factors within thinking styles present a compelling case for rethinking traditional models of intellectual development. By acknowledging the dialectical and integrated nature of cognition, emotion, and culture, we can develop a more nuanced understanding of thinking that not only informs educational strategies but also enriches our view of human thought itself.