Volume 4, Issue 6, June – 2026 **ISSN (E):** 2938-379X

EPISTEMOLOGICAL DIMENSIONS OF THINKING STYLE AND SCIENTIFIC COGNITION

Abdullaev Temur Bobir ugli
Doctor of Philosophy in Philosophical Sciences,
Gulistan State University,
tamuurdo@gmail.com

Abstract
Throughout the course of human history, there exists a fundamental connection between thought and reality. Specifically, the nexus of this relationship lies in social practices that shape the logical frameworks and principles of thought. Individuals acquire knowledge about their surroundings through emotional cognitive processes, yet this has occasionally resulted in misconceptions, such as the belief in a flat Earth or the geocentric model of the solar system. These misconceptions often led to skepticism towards sensory information, with rationalists downplaying the significance of sensory organs in cognition and emphasizing the primacy of thought. Conversely, proponents of empiricism in philosophy contested this perspective, arguing that excessive reliance on thought can introduce errors in understanding.

Keywords: Rationalists, empiricism, emotional cognition, way of thinking, cognitive process, dialectics.

Web of Teachers: Inderscience Research
webofjournals.com/index.php/1

Introduction

From a scientific perspective, concerning the role and characteristics of intuition in human life, it is evident that the external environment and the organism co-evolve through various facets. Living beings inherently seek interaction with the external world to a certain extent. Objects or events become biologically significant for the organism as a whole, compelling responses to these intricate stimuli. Intuition develops somewhat autonomously amid its internal contradictions. During the classical era, advocates of empiricism, which emphasizes the importance of emotional knowledge while critiquing abstract theoretical thinking, impede the progress of scientific understanding. Moreover, ancient mathematicians and philosophers, such as the Pythagoreans, who opposed the inclusion of irrational or fractional numbers in mathematics, sought to justify their stance by highlighting the uncertainty of these numbers. Consequently, such viewpoints contributed to the rejection of algebra as a field of study by Greek philosophers, delaying the advancement of analytical mathematical methods until later periods.

In his analysis, A. Batuyev discusses emotions as a structural component of cognition, stating: "Emotions, distinguished from other affective processes such as affects, feelings, and moods, remain one of the least explored realms of the psyche, subject to varying interpretations by

different authors." From this perspective, ancient Eastern and Western thinkers assert that what is absent in intuition cannot manifest in thought. N. Shermukhamedova notes: "Ancient thinkers observed that which eludes intuition cannot be grasped by thought."

Indeed, the role of intuition in shaping the thought process is significant. Intuition selectively highlights certain aspects of an object, albeit incapable of directly grasping its essence. Consequently, a tension arises between perceived individuality and yet-unrevealed commonality. Given that these aspects form an organic unity in objective reality, understanding their shared attributes, characteristics, and signs becomes imperative. Intuition inherently seeks this universality, yet its intrinsic link with the object (objective existence) imposes limitations. Moreover, this conflict propels the development of intuition. The intricacies of intuition present a multifaceted and complex problem, necessitating resolution based on advancements in specialized sciences and philosophy. Heated debates among experts persist on issues such as material versus ideal and mental versus physiological categories, reflecting the unprecedented progress of science.

The rational essence of the thought process is interpreted through the framework of logical forms shaped by historical development. A genuine understanding of the theory of thought necessitates a thorough examination of its developmental history. The rational essence of the thought process is enveloped within logical forms crafted over time. Consequently, it can be argued that thinking manifests in fundamental forms, namely concepts, judgments, and conclusions. Specifically, a concept can be regarded as a cognitive form reflecting the general, significant properties and relationships of objects and events. Additionally, comprehension represents the culmination of thought and understanding, not only encapsulating the general aspects of phenomena but also distinguishing and classifying them based on their distinctions. Furthermore, reasoning, as another mode of thought, involves connecting concepts to affirm or refute any notion about a subject. Ultimately, the most fundamental form of thinking, reasoning, demonstrates a relatively complete unity of judgments. Essentially, the process of drawing conclusions involves synthesizing various ideas to form a new perspective.

MATERIALS AND METHODS

The formation of thinking style has been extensively explored by Russian scholars L.A. Mikeshina [3], M.M. Bakhtin [4], B.I.Prujinin [5], and M.K.Mamardashvili [6] in their works, studies, and articles. This research utilizes the insights from these scholars. Methodologies employed in this study include the systematic approach, theoretical-deductive reasoning, analysis and synthesis, consideration of historicity and logic, as well as comparative analysis.

RESULTS AND DISCUSSION

A critical examination of the literature underscores the significant contributions of German philosophers such as G. Hegel and I. Kant to the evolution of thought in the modern era. Notably, G. Hegel's perspectives endeavored to dialectically elucidate the distinct characteristics of the cognitive process. His work "Phenomenology of Spirit" delves into profound philosophical insights concerning the nature of thought and the criteria for its development. Hegel posited that the universe and its entities are comprehensible because they

possess a spiritual and logical essence. Consequently, within the framework of human cognition of the external world, thought emerges as a superior stage compared to emotional perception and immediate observation. As objects of knowledge are apprehended emotionally, they can directly influence our sensory organs and evoke intuition. Consequently, science, facilitated by thought, investigates and unveils phenomena beyond our direct perception, which are neither seen, heard, nor felt.

Hegel posited that the essence and substance of thinking originate internally, emphasizing an intrinsic content rather than external influences. Accordingly, he argued that the process of cognition revolves around comprehending the inherent content of thought, rather than seeking understanding from external sources. Consequently, both thought and science are primarily concerned with delving into their own inherent content.

In Hegel's philosophical framework, rationality, divinity, reality, and necessity coalesce harmoniously. His renowned dictum, "All things according to reason are real, all real things are according to reason," encapsulates this synthesis. Furthermore, Hegel's ideas exerted a significant influence on the evolution of global philosophical discourse. Even in contemporary academia, scholars, particularly those studying cognition and knowledge, continue to draw insights from his works.

Moreover, when examining ancient modes of thought, it becomes apparent that they embraced a holistic worldview, devoid of rigorous analysis and detached from metaphysical contemplation of nature. Instead, nature was perceived as a cohesive entity, with interconnected phenomena and a unified developmental trajectory. Notably, this comprehensive understanding emerged not from abstract theorizing, but from direct observation of the natural world.

It can be contended that the essence of thinking involves drawing conclusions about various subjects. In this context, concepts that elude expression through reasoned analysis lack logical significance to us. Specifically, concepts and opinions of a particular nature do not hold a privileged position in the cognitive process. They represent fundamental components of observation, forming a complex chain of mental activities. Consequently, thinking materializes as a process of abstract reflection of objective reality within the human mind. From our perspective, the practical endeavors of individuals underscore the human mind's accurate representation of material objects and phenomena. However, within the constructs of human thought, concepts, opinions, and theories often contain elements of fantasy that deviate to some extent from tangible reality. This deviation becomes evident when individuals grapple with understanding the nuances of existence, occasionally transitioning from concreteness towards abstraction.

In reality, it's noteworthy that dialectical thinking, as a facet of human cognition, systematically critiqued the notion of utopia. Consequently, dialectical thinking inherently rejects utopian ideals, primarily due to the steadfast notion of "human nature" that serves as a consistent benchmark, as elucidated by Enlightenment thinkers of the 18th century and socialist-utopists of the early 19th century. This enduring criterion has consistently unveiled commonalities shared among all phenomena. Simultaneously, the critique of a simplistic idealistic view of history has engendered a paradigm shift in human thought. Notably, both Enlightenment philosophers and utopians alike espoused the notion that the mind and thoughts govern the

world. Hegel, for instance, asserted that while the mind shapes history, it also orchestrates the movements of celestial bodies akin to guiding the motion of stars. Hegel and Kant aptly identified certain fallacies within formal logic, thereby contributing to the evolution of cognitive frameworks. Specifically, they argued that logic often fails to fully adhere to its prescribed laws, which are deemed exemplary for concrete modes of thinking. Additionally, Kant's delineation of the duality between subjectivity and thinking underscores an inherent dichotomy within cognition itself. It's our contention that few logicians post-Kant have developed comprehensive theories of thinking that explore the nuanced "differences" between thought and existence. Such an endeavor is crucial for achieving a coherent understanding of thought's intrinsic nature. Subsequent philosophers, while acknowledging the fundamental unity of existence and thought, grappled with elucidating the true essence of reality. Objective idealists in philosophy posited that concepts about the world represented an accurate depiction of external reality, distinct from the human mind. Conversely, subjective idealists perceived objects as phenomena manifesting within the realm of human cognition.

The examination of the thinking process has been undertaken by philosophers from diverse perspectives. Specifically, within the framework of dialectical materialism, thinking is not merely an individual's subjective and spiritual capacity; rather, it is an attribute of the socio-economic system—a product of socio-historical development and a manifestation of spiritual production. Consequently, thought serves as a reflection of the developmental process resulting from the objective-practical alteration of nature by the socio-historical community. The various forms of socio-practical transformation of the world find direct expression through diverse forms of thought. As long as individuals operate within the confines of natural laws, thinking emerges as a manifestation of the external world within human socio-historical activity. The forms of thinking, in turn, represent different facets of the development of the tangible, external world, elucidated and explored by humankind. It is through this lens that the objectivity of universally significant forms of intellectual activity comes to light. We posit that the forms of thinking function as expressions of the social determination of individuals' intellectual activities, intricately woven into the tapestry of culture and spirituality. Despite individuals participating in these processes, they unfold autonomously, outside their volition and discretion. As previously discussed, an individual engages in thinking only when existing in harmony with the socio-cultural community that shapes their material and spiritual life, utilizing the forms of thinking crafted by preceding generations. However, the assimilation of these objective forms of thinking occurs through active objectification. In this process, the objective forms of thinking, initially considered constituents of the subject-material world, undergo a transformation, assuming the role of forms within individual intellectual activity.

According to our examination, ideal visions play a crucial role in shaping significant attributes in the formation of the thinking process. As articulated by E. Ilenkov, "The image of an object in the external world, when idealized in the human mind, becomes that object for an individual, and the fact that one interacts with this object without altering the actual object in the external world signifies the attainment of the level of an ideal object in the human mind." (Ilenkov, 181) Following this perspective, it can be asserted that activities that alter the ideal image of a subject concurrently constitute emotional-subjective activities, facilitating a transformation in the

perception of objects accessible to the senses. This dynamic heralds substantial changes. A material object essentially represents an objectified manifestation of human practical activity. This scenario allows for the amalgamation of material and ideal facets within activity, enabling both practical and theoretical alterations in the world. However, while the world itself remains unchanged, there occurs a shift in the form of lexical-symbolic objectification of the idealized image of the world, consequently leading to transformations in the concepts employed to delineate the universe.

In reality, neither the linguistic expressions of thought nor its manifestations as objects can be equated with thought itself. Rather, thinking operates through them, giving rise to an entirely new reality - the reality of socio-practical transformation of the material world. Consequently, the inquiry "does human thinking manifest in objects of the external world?" assumes a practical dimension rather than a purely theoretical one. Abstractly conceiving the existence of thought and existence is inadequate. Amidst the objective-practical transformation of the world, they invariably materialize in a concrete-historical manner, intricately intertwined with various social relations. A materialistic approach to thinking becomes pivotal in the scientific exploration of these interconnections. An illustration of this is the examination of patterns of spiritual and intellectual production during periods of capitalist upheavals. In our view, thinking, as the ideal form of subjective activity, can only exist as a mode of activity. Specifically, it is a form of activity concerned not with the material substance or composition of an entity, but with its configuration.

From a philosophical standpoint, to assert the existence of logical laws and forms specific to thinking, and to discern their distinctive nature through them, amounts to a misconception of the relationship between logic and thinking. Particularly, if dialectics, as one mode of thinking, represents a science of the universe, the external world, and the general laws governing the development of thought, it could be argued that it embodies both logic and epistemology. According to analysis, comprehending the style of thinking in philosophy necessitates prior acquaintance with the content of the style. As articulated by B. Parakhonsky: "The term 'style' possesses a relatively stable meaning, denoting a distinctive aspect, the uniqueness of a particular activity." (Parakhonsky, 41) Nonetheless, researchers contend that the concept of thinking style admits diverse interpretations, primarily influenced by varying philosophical and methodological perspectives.

A. Kravsa posits: "The perspective of the majority of authors investigating the phenomenon of thinking style can be encapsulated thus, allowing them to sidestep inquiries concerning the process of its formation and instead rely on the historical fact of its emergence." (Kravsa, 45) Building upon this viewpoint, the concurrent realization of the way of thinking alongside the concept of the structure of scientific knowledge can be rationalized on the grounds of historicity.

Many scholars diverge from reductionism in normative approaches when it comes to delineating the way of thinking. L. Fleck, for instance, associates the way of thinking with a longstanding community of thought. In our assessment, within a single scientific milieu, various modes of thinking may coexist, contingent upon the subject matter of science and its evolution. As articulated by I. Haking: "There may exist a relationship between styles of

thinking, and this relationship does not entail the superiority of any particular style." (Haking, 145-164) Such comprehension of thinking style leads L. Fleck to conclude: "The landscape is significantly shaped by the community to which the scientist belongs, influencing his mode of thinking, thereby transforming the known reality objectively into a different reality." (Fleck, 17) Each style, in our perspective, not only harbors its own worldview but also possesses a distinct conception of reality, not merely serving as a reflection of objective reality.

Conversely, Western philosophers of the post-classical era disassociated the way of thinking from the thinking community, linking it instead to the practical endeavors of the socio-historical community. According to this perspective, the process of human knowledge is construed as a function of the objective-practical mastery of the world, manifesting as forms of scientific thought.

Ludwik Fleck discusses the concept of thinking style as indicative of the depth of our understanding of fundamental aspects of material structure and theoretical methods. This perspective underscores the socially determined nature of the cognitive process, where researchers build upon the insights of their predecessors. Past thinking styles exert a regulatory influence on contemporary researchers, although the terminology of "thinking style" warrants clarification, perhaps aligning more closely with the concept of "form."

The role of thinking style as a mediator between philosophy and specialized scientific methodology highlights the intersection of culture and science. Philosopher H. Lacey describes official philosophical thinking as serving as a bridge between culture and science. Meanwhile, scientist M. Born's characterization of scientific thinking as a universal phenomenon underscores key aspects of the post-classical era. The issue of socio-cultural validity in scientific knowledge is addressed through interconnected abstractions of varying degrees. However, the reliance on generalizing abstractions rather than concrete cultural analyses has led to the replacement of terms such as "culture" with "philosophy" and eventually "thinking style." Consequently, within normative approaches, "thinking style" is often equated with concepts like "philosophy," "worldview," and "methodology" when exploring its relationship with specialized scientific knowledge. Thus, philosophers in this tradition must differentiate between "method" and "methodology," as well as "scientific worldview" and "worldview."

The concept of "thinking style" can be effectively likened to the notion of the "method of thinking," as highlighted in J. T. Tulenov's assertion that method constitutes a framework for constructing scientific knowledge rather than merely a procedural aspect of its acquisition. This perspective is echoed by L. Mikeshina, who posits that thinking style not only dictates the methods of knowledge but also shapes the structure of scientific knowledge and its specific historical manifestations.

However, certain perspectives on historical knowledge methods were challenged by the German philosopher G. Hegel. In his philosophical system, Hegel viewed method as an objective tool for realizing cognitive activity, contingent upon the subject and content of knowledge, and as a means of comprehending the inner dynamics and substance of cognition. Hegel's emphasis on the absolute idea as the driving force of self-development underscores the principle that individual cognitive endeavors are determined by a structured system of absolute knowledge. Consequently, Hegel does not employ the term "style" to delineate thought patterns

and subjects of knowledge. Rather, he regards this choice as integral to grasping the specific nuances of his concept of absolute knowledge, while acknowledging the existence of alternative modes of thinking beyond Hegelian logic, including materialism's role in logic's evolution.

W. Bibler elucidates Hegel's approach, suggesting that although Hegel contemplated such possibilities, he eschewed abstract speculation in favor of addressing the exigencies of his era.

CONCLUSION

It is imperative to emphasize that the methodological attributes of genuine thinking are not subjective or relative; rather, they transcend individual subjectivity and relevance, evading facile categorization within the confines of linguistic methodologies observed by external observers, particularly researchers in the humanities. Consequently, when investigating the phenomenon of thinking style within the context of scientific knowledge in the humanities, delving into the interplay between the concepts of thinking and style becomes intricate, as style is construed as a product of genuine interpersonal dynamics within scientific knowledge.

The salient features of social relations, pivotal in the knowledge acquisition process, necessitate both a specific way of thinking and linguistic expression. Notably, subjects of knowledge collaborate symbiotically, enriching each other's cognitive frameworks and contributing to mutual intellectual development. Herein lies the significance of a subject's thinking style, reflecting the cognitive paradigms pertinent to other knowledge subjects, thereby fostering collective knowledge dissemination. Consequently, the emergence of socially significant thinking — epitomized by knowledge and its integration with the public sphere — becomes apparent.

By scrutinizing the subject of knowledge, the phenomenon of thinking style in science can be dissected independently from linguistic style. Moreover, to comprehensively grasp the methodological idiosyncrasies of scientific innovators and their linguistic expressions, attention must be directed towards the interrelations among cognitive subjects, rather than merely focusing on the linguistic constructs they employ.

REFERENCES:

[1]. Batuev, A.C. (2010) Роль эмоций в организации поведения // Физиология высшей нервной деятельности и сенсорных систем. – М.: Питер, – С. 176.

[2]. Shermukhamedova, N.A. (2008) Gnoseologiya – Bilish nazariyasi. – Toshkent: Noshir, – B. 238.

[3] Mikeshina, L.A (2017). Детерминация естественно-научного нознания. – СП(б): Питер. – С. 104.

[4] Baxtin, M.M (1986). Эстетика словесного творчества. – М.: Искусство, – С. 302-368.

[5] Пружинин, Б.И. (1986) Рациональность и историческое единство научного знания. – М.: Наука, С. 15.

[6] Mamardashvili, M.K (2002). Философские чтения. – СП(б): – С. 435-436.

[7] Ilenkov, E.V. (1984) Диалектическая логика: очерки истории и теории. – М.: Политиздат. – С.181.

[8] Paraxonskiy B.A. (1982) Стиль мышления. Философский анализ стиля в сфере языка, культуры и познания. – Киев: Наук. думка, – С.41.
[9] Стиль мышления как выражение единства научного знания / под. ред. А.С.Кравца. – Воронеж: ВГУ, 1982. – С.45.
[10] Hacking, I. (2008) Styles of scientific reasoning / I. Hacking // Post-analytic philosophy. – N.Y.: – P.145-164.
[11] Fleck, L, Patrick (1999). Возникновение и развитие научного факта: Введение в теорию стиля мышления и мыслительного коллектива. – М.: Идея-Пресс, Дом интеллектуальной книги, – С. 17.161.
[12] Лэйси, Х. (2001) Свободна ли наука от ценностей? Ценности и научное понимание. – М.: Логос. – С.18.
[13] Туленов, Ж.Т. (1979) Диалектика и стиль научного мышления / Ж.Т. Туленов // Диалектика и научное познание: материалы науч. теор. конф. – Ташкент: Фан. – С.14.
[14] Андреев, И.Д. (1982) О стиле научного мышления: Науч. докл. высш. шк. / И.Д. Андреев // Философские науки. – - №3. 2. – С. 47-48.
[15] Микешина, Л.А. (1977) Детерминация естественно-научного нознания. – Л.: Изд. Ленинградского ун-та, –С. 31-32.
[16] Библер, В.С. (1975) Мышление как творчество. – М.: Политиздат. – С. 44-61.
[17] Кенжаев Шавкатжон Хусанович (2017). Подготовка будущих педагогов к нравственному воспитанию школьников. Наука, техника и образование, (1 (31)), 93-94.

Web of Teachers: Inderscience Research
webofjournals.com/index.php/1