

10th ICEEPSY 2019
International Conference on Education and Educational Psychology

**THE COGNITIVELY ACTIVE ROLE OF DOGMATIC
KNOWLEDGE IN LEARNING**

Alexander O. Karpov (a)*

*Corresponding author

(a) Bauman Moscow State Technical University, 105005, 2-nd Baumanskaya st., 5, Moscow, Russia.
E-mail: a.o.karpov@gmail.com

Abstract

In conditions where the production and application of knowledge is becoming the basis of social development, there is an acute question about the influence of dogmatic phenomena on learning and creative thinking abilities. The dogmatic knowledge is one of the most understudied dogmatic phenomenon. It is my position that dogmatic knowledge is cognitive-active knowledge and is fundamentally different in its cognitive functions from dogmatism. This approach is opposed to the traditional treating the dogmatic phenomena as conservative. The purpose of the study is investigation and development a theoretical model of dogmatic knowledge cognitive functioning in learning processes that makes a learner's thinking capable overstepping the boundaries of standardized knowledge, stereotypic cognition methods, and dictated ideas of reality. The article presents the epistemically multi-dimensional role of dogmatic knowledge. It is shown that dogmatic knowledge is the knowledge-basis in cognitive activity, which provides stability to cognitive processes. Rational-processual, sublimative, emotive-suggestive forms of dogmatic knowledge cognitive activities in learning are defined and analyzed. Types of cognitive sublimation – template-based, palliative, innovative – are identified and studied. The grounds are given for a fundamental importance of dogmatic knowledge in the creation of new knowledge. It is concluded that dogmatic knowledge, in itself, is not an epiphenomenon of dogmatism. It is a necessary part of learning, social life and personal existence. Epistemological studies of learning, thinking and reality, to be authentic, should take the cognitively active role of dogmatic knowledge into consideration.

© 2019 Published by Future Academy www.FutureAcademy.org.UK

Keywords: Dogmatic knowledge, Learning, Thinking, Cognition, Society.

1. Introduction



Creative thinking, production and application of knowledge are the basis for the development of a society and present-day professions (Curley & Formica, 2015b). Educational systems are becoming more and more similar to a knowledge corporation (Karpov, 2017b). In them, student's ideas are transforming into technologies changing the world (Overview of the MIT..., 2016). New training methods use high-tech tools that provide effective support for creativity (Johnson, Becker Ectrada & Freeman, 2015). Training workplaces are transformed into innovation-centric spaces that can productively link knowledge and experiences with real-world problems (Byrne & Davidson, 2015). In these conditions, there is an acute question about the influence of dogmatic phenomena on learning and creative thinking abilities.

The educational dogmatism is traditionally examined from the standpoint of a conservative impact on methods and contents of learning, a learner and a teacher, outcomes and social consequences. At the same time, along with the dogmatism concept and its correlates, the dogmatic knowledge falls into the category of dogmatic. It is one of the understudied dogmatic phenomena, which, as will be shown, plays a *cognitively active* role in learning processes.

The category of dogmatic is an attribute of intellectual culture over millennia of human existence. Originally, the ancient word "dogma" (δόγμα) meant opinion, verdict, enactment; later on, in addition, a philosophical doctrine or its principles. In Christianity, the religious dogmata became a testimony to the thought of *changeless* truth.

Dogmatism can be interpreted as a prohibition (of a particular force) on thinking and knowledge that go beyond the limits of the established canon. Among its sources are standardized education, social programming, and political authoritarianism. Data of psychological studies suggest that dogmatic subjects are prone to judgments and denial, associated with "disregard of the concrete and practical facets of reality" (Kreitler & Kreitler, 2013). Dogmatism allows "setting standards which are unrealistic in terms of existing human faculties" (Lai, 2012, p. 26).

Dogmatism has many faces. Dogmatism in politics can be an instrument that justifies the lack of outcomes, hides weakness of beliefs, save rent for its owners (Meseguer, 2009). Dogmatism in learning uses critical thinking only as "the ability to raise objections to certain beliefs", without departing from the position of one's own opinion (Gottschalk, 2018, p. 473, 475). Dogmatism in science contributes to "the perpetuation of paradigm wars and the ossification of theories" (Ambrose, 2013, p. 9, 10). Under its influence, "even the advocacy of dialectics may become a school's dogma" (Agassi, 2012, p. 4). And creativity in one area can't protect from dogmatism in another (Elder & Paul, 2013, p. 39).

Psychologically, dogmatism rests on faith and convictions, and epistemologically – on dogmatic knowledge. However, there is a viewpoint that divides it into these two forms (Borland, 2013, p. 12).

Dogmatic knowledge in the cognitive structure of a person is knowledge that has the status of steady truth; it is protected from internal (own) criticism and doubts beyond the rational. The dogmatic knowledge category includes, for example, the content of convictions that admit an external critical attitude, as well as religious dogmas that exclude it. Dogmatic knowledge is beyond critical perception, but this does not mean that it is always gained as a result of a non-critical attitude towards the reality.

The development of dogmatic knowledge epistemology that separates it from dogmatism can shed light on challenging issues concerning the promotion of social innovations, the formation of higher-level thinking, the creation of cognitively-active forms of education, including of gifted education.

2. Problem Statement

Dogmatic knowledge is a fundamental epistemic phenomenon that interlinks reality, thinking and learning. Reality, by canonizing well-established life forms, imposes patterns on thinking and inserts them in learning. Thinking, following cognitive preconceptions, constructs reality on their basis and standardizes learning. Learning incorporates dogmas into reality and thinking, and builds the world that acts and thinks according to their templates.

At the same time, the attitude of dogmatic knowledge to reality, thinking, learning goes far beyond the limits of conservative schematics. The world wants something more than just conservation.

The dogmatic knowledge underlies learning; but a graduate should be able to be guided by own opinion. Therefore, of interest are mechanisms of dogmatic knowledge involvement into processes of cognition and new knowledge generation. This work solves the problem of identifying the cognitive functions of dogmatic knowledge that provide cognitively active forms of learning.

3. Research Questions

- 3.1. What is the role of dogmatic knowledge in the cognitive activity of thinking and learning?
- 3.2. What forms and mechanisms of cognitive activity of dogmatic knowledge does learning use?

4. Purpose of the Study

The purpose of the study is investigation and development a theoretical model of the cognitive functioning of dogmatic knowledge in learning processes that makes a learner's thinking able to overstep the boundaries of standardized knowledge, stereotypic cognition methods, dictated ideas of reality.

5. Research Methods

Methodologically, the study is two-staged. At the first stage, empirical data are collected and analyzed in the context of research training for schoolchildren; at the second stage, a theoretical model is developed on its basis.

At the first stage, the object under study is a three-year teaching and learning process within the Research Training School at the Bauman Moscow State Technical University that was founded by me in 2014 for eighth-graders at the age of 13-14 years. Structurally, the education contains three didactically connected “verticals”: disciplinary, analytical and research. The first was arranged by a dogmatic way that is traditional for a school (subjects, lectures, seminars), the second gave a chance for cognitive “loosening” the dogmatic knowledge, the third led to processes of truly new knowledge generation (Karpov, 2018a, p. 88-90). In training organization, more than 25-year experience in the “Step into the Future” program proposed and managed by me from 1991 was used. Today, more than 150 thousand schoolchildren-researchers living at the territory of 9 time zones in Russia take part in this program every year (Karpov, 2019b). The experimental part included observations, surveys, examination of thinking

productivity in the course of scientific researches and engineering developments performed by schoolchildren in laboratories and engineering centers of the University.

At the second stage, theoretical comprehension, structuralization and conceptualization of the empirical data were carried out. When creating a model of dogmatic knowledge cognitive functioning, methods of pedagogical analysis of learning situations, epistemology, cognitive psychology, Jung's analytical psychology, sociology of education and science studies were used.

6. Findings

6.1. Dogmatic knowledge as the knowledge-basis

Like any other knowledge, the dogmatic knowledge is taking shape in the process of growth in an individual psyche (Karpov, 2019a). It stems from steady-state data of practical activities, opinions of authorities, customs, generally accepted views and prejudices. It is cultivated by absorbing contexts, building up semantic links, accumulating theory and experience of use. Having presented itself as absolutely reliable, it becomes self-evident, indisputable, not requiring confirmation and, ultimately, what you should believe or follow, i.e. infallible and unconditional.

Dogmatic knowledge is the foundation of a stable cognitive structure of a personality and a cognitive support in processes of reality mastering. It forms a steady part of the world picture, and a system of epistemic frameworks (restrictions) and coordinates in it for cognitive thinking, i.e. positions and sets up landmarks in its activity.

Education, and especially upbringing, as an instrument of social management, relies on postulated ideas and suggestive perceptions. In this way, the education system cultivates the dogmatic knowledge and indoctrinates what *should* seem to be the truth. As a rule, the theory of evolution or creationism, physical models, the historical past and the social present are not problematized in education and taken out of learning discussion.

Socialization uses incorporated dogmas of education and upbringing so that an individual, proceeding from the *embedded* obvious, rationalizes social strategies and constraints. Socialization in the adolescent period is the process of mastering a social role (or a set of them) through participation in practices of social groups. Unlike upbringing as such, that is a product of a heterogeneous combination of influences (family, street, training, ethnicity, art, media, etc.), socialization takes place within a specific institutional system – in educational institutions, professional teams, social movements, political organizations, criminal gangs, etc. The ontological foundation of a social group is a system of dogmatic knowledge regarding values, attitudes, traditions, arrangements of activity, standards of behavior and rationalization. They are embedded into a person through socialization tools – social learning and group upbringing.

6.2. Forms of dogmatic knowledge cognitive activities

When a situation – internal or external – takes beyond a mental reflex, the dogmatic knowledge is functioning in cognitively-active forms. An indicator of the dogmatic knowledge cognitive activity is concentration of cognitive practices that stimulate an intense interest, conceptual changes, destruction of conventions, identity and conditions of group life. It forms an epistemically unstable region of the dogmatic knowledge that *provokes* an emergence of intellectual novelties.

Three forms of the dogmatic knowledge cognitive activity can be distinguished – rational-processual, sublimative and emotive-suggestive. To a greater extent, the first is an expression of the rational movement of thought, the second is a cognitive tension that intensifies cognitive practices and takes out of the limits (transcends) of existing knowledge, the third is the sensual activity of human psyche that is genetically involved into the cognitive action.

The rational-processual form is implemented through “mechanics” of thought that constructs combinatorial schemes, classifications, typologies, compositions, which forms deductions and conceptualizations. Thinking within the limits of the well-known and well-established cognitive material approaches its boundaries, puts them in question and gropes for epistemic lacunae, i.e. the area of cognitive insufficiency. The dogmatic knowledge in the context of *problematic* situations plays a role not only a supplier of a material for reflective thinking, it is an indicator of *its* deficit.

The sublimative form is a psychic transformation of internal non-conscious processes – cognitive interest, intuitive work of thought, a game of images and insights – into external activity of thinking or a physical action. Intensification of thinking at the boundaries of the epistemic lacuna forms an area of cognitive tension, which triggers the intuitive function of psyche.

The emotive-suggestive form is implemented through the sensual part of psyche – internal perceptions, emotional experiences, doubts caused by an epistemic instability in its region, and infusions that make it possible to comprehend and overcome them. This form accompanies the rational-processual and sublimative forms and participates in them. Emotions can involve cognitive changes and bear an evaluative content attributed to the object of emotions (Brogaard & Chudnoff, 2016). In so doing, they are able to change the subjectively perceived essence of things.

Emotive-suggestive activity is based on deeper layers of the subconscious that contains programs for responding to a situation or action. These programs are “built on” emotive-type and suggestive-type dogmatic knowledge that predetermines sensual and intellectual reactions. Consequently, we may conclude that dogmatic knowledge in the process of cognition addresses to itself by its emotive-suggestive constituent.

6.3. Dogmatic knowledge and dogmatization in learning

Dogmatic knowledge is genetically incorporated into learning – into the subject matter, ways of learning, pedagogical activities, curricula. It is a tool for personality programming by the powers, politics, and society. Cultural features of thinking and behavior, resting on deep dogmatic structures of knowledge, affect the possibilities of learning (Karpov, 2019d). Thus, traditions of Asian (including Russian) upbringing play the role of a cultural obstacle to introduction of active learning models (Joanne & Lateef, 2014). In these societies, learners prefer to follow the authoritarian and edifying initiative of teachers and

feel comfortable in structured situations of learning. At the same time, teachers view themselves as absolute experts and interpret an intellectual disagreement as a personal disloyalty (Hofstede, 1986).

Learning cognition begins from acquisition of knowledge, which acts as the immutable truth. It may remain as it is and further on, or use a critical discussion, a study of alternatives, search methods leading to outside of dogmatic knowledge. Nevertheless, even in the last case, it is necessary to study what will be problematized, to master techniques allowing putting into question what has been adopted. Consequently, the non-dogmatic learning requires a knowledge-basis incorporating declarative and operational contents that are cultivated in the individual as an undoubted given, i.e. dogmatic in essence. This undoubted given is, for example, language, fundamentals of mathematics and natural science, social and moral principles of society.

Dogmatization of knowledge and cognition is influenced by normative structures built into learning, which determine the degree of its freedom or, in other words, its *rigidity* or *transformative* frameworks (restrictions). The concept of learning rigidity as a set of constraints was introduced by W.E. Doll. He treated the modern curriculum as a process meeting the post-modern principle of “four R” i.e. characterized by “rigorous, rich, recursive, relational” (Doll, 1993, p. 156). I identify three types of transformative frameworks (rigidity) of learning – didactic, epistemic and ontological (environmental). The first imposes restrictions on contents of learning, the second – on models of thinking that are cultivated in learning, and the third – on a link between learning and reality.

Pedagogical concepts are based on postulates that play the role of immutable truths, i.e. are dogmatic in nature. This pedagogical dogma, for example, is scientism, formally absorbed by education. It instilled a special “scientific” type of cognitive dogmatism into the modern education system that put at the forefront the empirical verification of knowledge, belief in infallibility of a scientific method, exclusion of “non-scientific” facts from the sphere of cognitive action. Nevertheless, it failed to develop a learning method that would be able to shape a scientific picture of the world at a practical level in the “scientized” society (Karpov, 2018b). Another example of pedagogical dogma are developmental models of teaching, which, more or less, are characterized by absolutization of a learner's cognitive role. In this way, a teacher is placed in the position of “epistemic mores police” isolating him/her from engagement with mastering and understanding the surrounding world (English, 2009).

6.4. Mechanisms of dogmatic knowledge cognitive activities in learning

The human ability to cognitive innovations depends not only on the scope of acquired knowledge, including dogmatic, but, to a greater extent, on thinking that makes dogmatic knowledge cognitively active. For this purpose, thinking should approach the limit of dogmatically absorbed, “loosen” it and use resources of dogmatics to acquire the new. It should become *oppositional thinking*, organizing the search for other conceptions, interpretations, definitions for objects of theory or experience. But even being such, it realizes its insurgent properties in working on the dogmatic material. Let's review the mechanisms for implementing the forms of dogmatic knowledge cognitive activity in learning.

- a) Rational-processual form of cognitive activity

The rational-processual form of dogmatic knowledge cognitive activity in learning is the first step in the work of thinking, leading to the boundaries of dogmatic material – a subject content, cognitive methods, ideas about reality. Here, overcoming the directly established rigidity of learning is planned, i.e. a learner fine-tunes his mind for aims at opening its transformative frameworks.

In this way, limitations imposed by the educational standard on the socio-cognitive and spiritual growth of an individual should be revealed. A learner may find them in the deficit of academic knowledge used to describe the reality (a didactic framework); in the shortage of cognition tools allowing penetration into the reality (an epistemic framework); through the weakness of thinking to understand the reality and oneself in it (an ontological framework). It should be noted that the material taken outside the academic reality does not guarantee the absence of dogmatic content.

Learning on the basis of dogmatic knowledge can use a critical interactionism, cognitive alternatives, problematic situations, a generative environment, a flipped class, virtual reality technologies, and other means creating epistemically unstable zones. Through them, thinking is directed into the depth of dogmatic knowledge (as it happens in scholasticism and in formal school), and comes to its limits. The spirit of creativity stimulates an emergence of “smart questions”, i.e. those “that pose dilemmas, subvert obvious or canonical ‘truths’, force incongruities upon our attention” (Bruner, 1996, p. 127). Therefore, it is appropriate to speak about the dogmatic knowledge cognitive “loosening” method that allows to clear up the cognitive boundaries incorporated into a personality by learning, and identify internally the presence of the external that they exclude.

The cognitive “loosening” method can be implemented as a set of cognitive shifts *inside* the preset system of dogmatic knowledge and ways of working with it. The greater is the wealth of this system, the higher can be the intensity of thinking and dynamics of cognitive movement. Consequently, perceptions of boundaries stopping the motion of thinking and epistemic lacunae behind them will become more sensitive. In such a way, molecular collisions in the Brownian motion heat a vessel and gives freedom to its content.

Cognitive “loosening” of the dogmatic knowledge, in order to be productive in terms of cognitive outcomes, should focus on specifics of the subject area expressed in cognitive acts of accessing to it – in formulated questions, tasks, and problematic situations. Here it is necessary to “encourage learners to explain their thinking, revisit their solutions, and invite alternative approaches” (Roberts & Le Roux, 2019, p. 14). The accessing process can be implemented as a set of study and non-study periods, any of them characterized by its duration and frequency of cognitive acts.

b) Sublimative form of cognitive activity

The sublimative form of dogmatic knowledge cognitive activity exhibits itself in learning when solving the tasks (exercises) that demands going beyond the limits of mechanical logicism: direct application of formulas, dependencies, facts, laws, or learned patterns of their transformation. Examining the non-obvious, thinking immerses into itself being intensely reflecting and goes into the unconscious. In normal situation, psychic activity can “elevate”, or in other words, *sublimate*, the internal tension up to *other* external contents or activities. Then, the task is postponed or discarded.

However, in conditions of learning, there are severe forces of external compulsion and internal self-motivation that are able (but not always) to keep the state of deep thinking over the task. Under pressure of motivating structures, work in the unconscious is underway on the material that includes the non-obvious in it. This deep-seated thinking is fed by contents of rational and non-rational experiences relevant to the task, including the dogmatic type. It destroys the dogmatic freeze of well-established knowledge and mental schemes that work with it, causing something similar to a cognitive dissonance. It leads to the inner maturation of the non-obvious, directing the sublimation to resolution. The result may be understanding, insight into the essence of the problem, intuition or flash of genius leading to the solution. Lack of cognitive resources leads to the sublimation process termination.

The sublimation process, leading to insight, underlies the transcendent function of thinking, which is implicated in creativity. Along with achievement the heights of creativity, the sublimation enables going beyond the boundaries of mechanical thinking in solving training problems (the latter is perceived as a borderline rationality). In general, the cognitive sublimation process leads to the following possible outcomes: creation of objectively new knowledge (including in learning), acquisition of subjectively new knowledge, substitution of unmet needs, decay of sublimate activity.

In the cognitive sublimation, as an integral part of a cognitive action (including learning), a certain composition of cognitively active knowledge is involved, where, in general, I can distinguish three components. The first is knowledge-basis that is not in question, i.e. the dogmatic knowledge. The second includes the dogmatic knowledge that is called into question. Being subjected to reflection and analysis, such knowledge loses its dogma. The third component consists of units of knowledge that have not become, and some may never become, dogmatic (the innovative knowledge falls into this category, i.e. knowledge that is capable of producing objectively new knowledge). It includes theoretical and empirical contents, acquired in the current cognitive process and in the cognitive acts carried out outside of it.

I identify three types of cognitive sublimations – template, palliative, innovative, that differ in the composition of involved cognitive-active knowledge. Let's briefly describe them.

The template sublimation uses the material of dogmatic knowledge. For example, it is peculiar to the process of solving problems from the course of school mathematics and social learning. Here the creative function of thinking is in the state of anemia. The template sublimation produces special speculative “innovations” that provide a learner with an available dogmatic material and fit into the custom and the canonical social role.

The palliative sublimation operates with the first and second components of cognitively active knowledge. To comprehend any social fact from academic disciplines or the reality, a learner uses a dogmatically absorbed knowledge platform with constituents called into question. Borders for mental innovations set the matrices of socially and culturally acceptable, that implanted into the socialization process.

The innovative sublimation involves all three components of cognitively active knowledge. It accompanies the processes of research training, scientific cognition, and deep social transformations. In these types of practice, the cognitive activity shapes and relies on the internal structures of innovative knowledge. And at the same time, the transcendence, making the transition from the existing knowledge to the new, uses the dogmatic basis – well-established knowledge and intelligence work patterns.

The type and amount of cognitive sublimation used in learning determine the level of its dogmatization. Let's take a closer look at how this happens in three outlined types of the cognitive sublimation.

The dominant role of template sublimation in cognition processes makes learning mostly dogmatized, and its organization – mostly economical, i.e. requiring least pedagogical efforts and resources. Dogmatized learning formulates that *this* and only *this* is in existence, do like *that* and in *no other way*, i.e. it restricts thinking to a standardized set of facts and roadmaps of action. Verification of the solution uses mechanical transformations, similar to substitution of an answer in the original equation, or scholastic justifications in the closed system of dogmatic knowledge. In these conditions, the sublimation produces a speculative evidence (that is dogmatic in its nature), and generates thinking that is rigid to creativity.

The palliative sublimation gives rise to a critical function of thinking and makes it capable of acquiring knowledge that is outside the training template but at the same time typical for a specific profession, a social or cultural group. For verification of the solution, an external closed system of time-tested knowledge is additionally used. An exogenous resource involved in learning blurs its dogmatization and sets for thinking its own perimeter accessible for learning. This learning, enclosed in external cognitive boundaries, is called “open learning”. Nevertheless, it remains committed to the dogmatization of knowledge and cognition. Cognitive activity in the framework of open learning plays the role of *sublimative exercises* that prepares thinking for a higher type of cognitive transcendence.

The innovative sublimation is an enemy of educational dogmatism and a source of creativity and high achievements. In contrast to the dogmatized learning, thinking here goes beyond what is learned or taken from the limited surrounding. Features of creative activity – unpredictability of the process and outcomes, initiative and autoregulation of knowing, emotionality and spiritual concentration – make the traditionally rigid arrangement of education problematic. Verification of a creative problem solution in many respects is an open question; it often depends on cognitive views of a learner rather than the standard of correctness and opinions of an authoritative person.

The creativity destroys learning in its traditional class-lesson and lecture-seminar forms and calls for a new problem-cognitive form. It is constructed as an epistemically open and self-transforming cognitive system. Its core is a learner's problem-cognitive program that involves acquisition of necessary complex of disciplinary knowledge in the course of its development (Karpov, 2017a). It is characterized by plasticity of socio-cognitive development, dynamics of pedagogical decisions, generativity of a teaching method and a learning environment (Karpov, 2019c).

c) Emotive-suggestive form of cognitive activity

The cognition process, including learning, is emotional and suggestive. Learning uses feeling and infusion when *growing of* knowledge in a learner. At the same time, it *builds up* the emotive-suggestive knowledge that a person genetically inherited and absorbed from the surrounding. In this case we should point to *two kinds* of emotive-suggestive activity of knowledge in learning cognition. The educational material digestion process is immersed in the first-kind activity; it accompanies and participates in it. The second-kind activity is a transformation of the emotive-suggestive basis of a learner's personality.

The *first-kind* of emotive-suggestive activity of the dogmatic knowledge is characterized by overriding the cognitive thresholds the learning process contains. Let's briefly identify the processes associated with it.

In the rational-processual form of the dogmatic knowledge activity, the cognitive threshold is the timepoint of identification of epistemic lacunae, which are sensually perceived as a cognitive barrier. Suggestive counteraction from well-established knowledge causes thinking "idling" and an increase in psychic tension, when emotive resources should be activated to overcome them. Emotional mobilization allows, as the saying goes, "collect thoughts". Its assistance is the result of both personal emotional competence and teacher's psychological literacy, especially important in the context of cognitive "loosening"

In the sublimative form of the dogmatic knowledge activity, the cognitive thresholds emerge at stages of cognitive process transition to the level of the unconscious and the sublimation product origination. The fruitless attempts at solution causes discomfort, anxiety, confusion exaggerated under action of an attitude that limits its time. Preoccupation with one's own powerlessness generates frustration due to the loss of time.

Wishing to overcome spending itself in time, thinking rushes to a place where time is not counted, thereby losing its comprehension and consciousness with it. Being in the unconscious and groping for a solution, thinking experiences excitement, inspiration, and tremble, turning into sublimative catharsis. Finding a solution causes exultance and delight, similar to Archimedean "Eureka!". Here, the emotion is driven by the suggestion, calling for arriving at a solution.

The second-kind of emotive-suggestive activity of the dogmatic knowledge is peculiar to upbringing that produces enrichment, correction or change of emotional knowledge and attitudes of a learner's personality. The identification of what needs to be changed uses sensual (emotional) and intellectual (suggestive) reactions to the learning action. For example, "like-dislike" relates to sensual reactions, "overcoming difficulties – retreating from them" – to intellectual reactions. The first, like intuition, is a response to a situation, the second – to a specific action. A learner may dislike mathematics situationally, because there are many tasks in it that a learner can't solve. The solution of the problem is postponed pragmatically, because the thinking process faces hurdles. Grievance is not caused by a critical word of a teacher or a smile of a friend, but a situation that is interpreted as humiliation. An unlearned lesson is not just a result of "good weather outside" but a result of intellectual disregard. Lack of will is also an attitude.

7. Conclusion

The role of dogmatic knowledge is epistemically multisided; it is fundamental for thinking creating the new. The dogmatic knowledge is functioning as a knowledge-base, ensuring stability to cognitive processes. It is an indicator of epistemic lacunae that thinking detects by the rational-processual form of cognitive activity. It is genetically incorporated into the structure of cognitively active knowledge involved into the cognitive sublimation being a source of creative transcendence. It contains the emotive-suggestive knowledge that can stimulate and direct thinking towards realms of the unknown. Only in the complex of its functions the dogmatic knowledge can be included in analytical and constructive schemes

of knowing, which give explanations to the phenomena of reality, thinking, and learning, and design their future.

References

- Agassi, J. (2012). *Science in Flux*. N.Y.: Springer Science & Business Media.
- Ambrose, D. (2013). *Finding Dogmatic Insularity in the Territory of Various Academic Disciplines*. In: *How Dogmatic Beliefs Harm Creativity and Higher-Level Thinking*. N.Y. and London: Routledge, 9-26.
- Borland, J. H. (2013). *You Can't Teach an Old Dogmatist New Tricks: Dogmatism and Gifted Education*. In: *Confronting Dogmatism in Gifted Education*. N.Y. and London: Routledge, 11-24.
- Brogaard, B., & Chudnoff, E. (2016). *Against Emotional Dogmatism*. In: *Philosophical Issues*. Hoboken: Wiley Periodicals, 26. *Knowledge and Mind*, 59-77.
- Bruner, J. (1996). *The Culture of Education*. Cambridge and London: Harvard University Press.
- Byrne, D., & Davidson C. (2015). *State of Making Report*. Pittsburgh: Carnegie Mellon University, MakeSchools Higher Education Alliance.
- Curley, M., & Formica P. (2015b). *University Ecosystems Design Creative Spaces for Start-Up Experimentation*. In: *The Experimental Nature of New Venture Creation: Capitalizing on Open Innovation 2.0 (Innovation, Technology and Knowledge Management)*. N.Y.: Springer Science & Business Media, 13-22.
- Doll, W. E. (1993). *A Post-modern Perspective on Curriculum*. N.Y. and London: Teacher College Press, Columbia University.
- Elder, L., & Paul, R. (2013). *Dogmatism, Creativity, and Critical Thought: The Reality of Human Minds and the Possibility of Critical Societies*. In: *How Dogmatic Beliefs Harm Creativity and Higher-Level Thinking*. N.Y. and London: Routledge, 37-49.
- English, A. (2009). Transformation and education: The voice of the learner in Peters' concept of teaching. *Journal of Philosophy of Education*, 43, 75-95.
- Gottschalk, C. M. C. (2018). Teaching critical thinking: The struggle against dogmatism. *Educational Philosophy and Theory*, 50(5), 469-477.
- Hofstede, G. (1986). Cultural differences in teaching and learning. *International Journal of intercultural relations*, 10(3), 301-320.
- Joanne, C. S. M., & Lateef, F. (2014). The flipped classroom: Viewpoints in Asian universities. *Education in medicine journal*, 6(4).
- Johnson, L., Becker A.S., Ectrada V., & Freeman A. (2015). *NMC Horizont Report: 2015 Higher Education Edition*. Austin, Texas: The New Media Consortium.
- Karpov, A. O. (2017a). Problem-Cognitive Program of the Students-researchers in the Knowledge Society Cultural Reality. In: *The European Proceedings of Social & Behavioural Sciences (EpSBS)*, XXVII, 332-340.
- Karpov, A. O. (2017b). The Modern University as a Driver of Economic Growth: Models and Missions. In: *Problems of Economic Transition*, 59 (11-12), 909-930.
- Karpov, A. O. (2018a). Early Engagement of Schoolchildren in Research Activities: The Human Factor. In: *Advances in Intelligent Systems and Computing*. 596. *Advances in Human Factors in Training, Education, and Learning Sciences*, 84-94.
- Karpov, A. O. (2018b). Fundamentals of Education in Knowledge Society: Theoretical Forecast. In: *Revista Romaneasca pentru Educatie Multidimensionala*. Iasi: LUMEN Publishing House, 10, 1, 171-182.
- Karpov, A. O. (2019a). Designing the University's Creative Environment: Structural-Functional Analysis. In: *Advances in Intelligent Systems and Computing*. Cham (ZG): Springer, 857, 319-332.
- Karpov, A. O. (2019b). «Step into the Future» Program as a System of Non-formal Research Education in Russia. In: *Advances in Intelligent Systems and Computing*. Cham (ZG): Springer, 785, 249-258.

- Karpov, A.O. (2019c). Universities in the Knowledge Society: Models of Generative Learning Environment. In: *The European Proceedings of Social & Behavioural Sciences (EpSBS)*, LIII, 748-758.
- Karpov, A. O. (2019d). University 3.0 – between Globalization and Culture. In: *The European Proceedings of Social & Behavioral Sciences (EpSBS)*. Iasi: *Future Academy*, LX, 106-117.
- Kreitler, S., & Kreitler, H. (2013). *The Cognitive Foundations of Personality Traits*. N.Y.: Springer Science & Business Media.
- Lai, Y. (2012). *Religious skepticism and China. The Sceptical Mode in Modern Philosophy: Essays in Honor of Richard H. Popkin*. N.Y.: Springer Science & Business Media.
- Meseguer, C. (2009). *Learning, Policy Making, and Market Reforms*. Cambridge: Cambridge University Press.
- MIT Innovation Initiative: Final Report of Community Feedback and Recommendations (2016). Cambridge: Massachusetts Institute of Technology.
- Overview of the MIT Innovation Initiative. (2016). Cambridge: Massachusetts Institute of Technology.
- Roberts, A., & Le Roux, K. (2019). A commognitive perspective on Grade 8 and Grade 9 learner thinking about linear equations. In: *Pythagoras*. Cape Town: AOSIS Publishing, 40, 1, a438, 1-15.