

CONCEPTS IN CULTURAL-HISTORICAL PSYCHOLOGY
ПОНЯТИЯ КУЛЬТУРНО-ИСТОРИЧЕСКОЙ ПСИХОЛОГИИ

Significance of Cultural-Historical Theory of Psychological Development of L.S. Vygotsky for the Development of Modern Models of Social Cognition and Psychotherapy

A.B. Kholmogorova*,

FSBI FMRCPN named after V.P. Serbsky of Ministry of Health of the Russian Federation;
Moscow State University of Psychology & Education, Moscow, Russia,
kholmogorova@yandex.ru

The article acknowledges the situation of methodical crisis in modern research of social cognition related to the domination of reductive approaches that ignore the uniqueness of human psyche. Heuristicity of concepts of cultural-historical theory of psychological development of L.S. Vygotsky, which serves to overcome the apparent inconsistencies is substantiated. Models of social cognition based on the principles of cultural-historical psychology are described, those being the model of social cognition within phylogenesis of M. Tomasello, and the model of social cognition within ontogenesis of C. Fernyhough. Current situation in the area of mental health is reviewed from the standpoint of cultural-historical psychology, its specifics reflected in the increased burden on reflexive functions, that is, skills lying within the sphere of social cognition is substantiated. Modern psychotherapeutic apparatus directed to compensate social cognition deficits due to various psychiatric disorders is reviewed. The assumption that adolescence is sensitive period for the development of higher forms of social cognition is made, and a summary of researches supporting this assertion is presented. Main contradictions of modern-day maturing are enunciated. To conclude the presented theoretical analysis, a comprehensive multiple-factor model of social cognition is presented based on concepts of cultural-historical theory of L.S. Vygotsky.

Keywords: social cognition, cultural-historical theory of psychological development, intentional subject, dialogical thinking model, psychotherapy, self-reflection, mentalization, mindfulness, sensitive period, adolescence, comprehensive multiple-factor model of social cognition.

The analysis of citation ratios of L.S. Vygotsky's works in scientific publications reveals that it has been only within the past decade that many researchers discovered cultural-historical psychology¹. In this article, we will try to analyze the reasons for the growth of interest to it on the part of researchers in the field of social cognition, that is, those seeking an answer to the question of "how do individuals understand each other?" This same

For citation:

Kholmogorova A.B. Significance of Cultural-Historical Theory of Psychological Development of L.S. Vygotsky for the Development of Modern Models of Social Cognition and Psychotherapy. *Kul'turno-istoricheskaya psikhologiya = Cultural-historical psychology*, 2016. Vol. 12, no. 3, pp. 58–92. (In Russ., abstr. in Engl.). doi: 10.17759/chp.2016120305

* *Alla Borisovna Kholmogorova*, Doctor of Psychology, Professor, Head of Clinical Psychology and Psychotherapy Laboratory of FSBI FMRCPN named after V.P. Serbsky of Ministry of Health of the Russian Federation, Head of Counseling and Clinical Psychology Department, Moscow State University of Psychology & Education, Moscow, Russia. E-mail: *kholmogorova@yandex.ru*

¹ While in early 1990s there were only several hundreds of the above citations, in 2015, their number amounted to 9,000. According to Google Scholar, between 1996 and 2015, the number of references to the works of L.S. Vygotsky amounted to 135,000, which is higher even than the number of references to the works of J. Piaget (see article of A. N. Perret-Clermont in this issue).

question a matter of concern for L.S. Vygotsky, notwithstanding the fact that he never studied what modern psychology calls *social cognition* or *social understanding*, which are narrowly defined as the ability to construct an image of mental states of other persons and of one's own states, as well as to associate it with the behavior of an individual in a certain situation.

Nevertheless, the main ideas and concepts of cultural-historical psychology proved to be heuristic for this area of research and gave impulse to the creation of innovative theoretical models of origination of social appreciation ability within phylogenesis and its establishment and development at early stages of ontogenesis, which are presented in this article. From the standpoint of cultural-historical psychology, it is also possible to answer the question, why many modern methods of psychotherapy are focused on the development of apparatus to compensate deficit of capacity for social cognition, as well as to make an assumption of the occurrence of a sensitive period in development of higher forms of social cognition within the process of ontogenesis. In the concluding section of the article, the original model of social cognition is presented as the highest psychological function. The model is based on the concepts of cultural-historical psychology, with a special emphasis placed on the unity of affect and intellect.

International Scientific Search of a New Methodology of Research of Psychological Development and its Disturbances

The rise of social cognition paradigm within developmental psychology, clinical psychology and psychiatry occurred in 1990s, at the time when the so-called mirror neurons were discovered, and a hypothesis was put forth that certain structures of cerebrospinal system ("social brain") existed that were responsible for social cognition, whose defects were the source of psychiatric problems [24; 25]. This renaissance of by no means new expectation that the mysteries of human psyche could be revealed with the knowledge of brain evolution, which conflicts with the very essence of cultural-historical psychology, led to the establishment of new ambitious and costly projects. Nevertheless, this very situation prompted many social cognition researchers to consider alternative theoretic bases for social cognition processes analysis.

The most ambitious research project over the past years funded by National Institute of Mental Health (NIMH) of the USA is known as RDoC (Research Domain Criteria); it incorporates various research domains, with a special role of "Social Cognition" Domain. Here is what Ruben Gur, one of the project's leaders, writes in the introductory section of his article dedicated to the domain: "While the bulk of research into neural substrates of behavior and psychopathology has focused on cognitive, memory and executive functions, recently there has been a surge of interest in emotion processing and social cognition manifested in designating Social Cognition as a major RDoC domain. We describe the origins of this field's influence on cognitive neuroscience and

highlight the most salient findings leading to the characterization of the "social brain" and the establishments of parameters that quantify normative and aberrant behaviors. Such parameters of behavior and neurobiology are required for potentially successful RDoC construct, especially if heritability is established, because the need exists to link with genomic systems." [65].

To achieve this goal, huge resources and a large number of specialists were involved examining the probable genetic activity mechanisms in various brain regions engaged in the solution of diverse social cognition problems by healthy individuals, patients and their relatives. Today's environment of disciplines studying human development and mental health is characterized by a rush for facts supporting links of genetics, social cognition and behavior disorders.

Let us quote Bruce Cuthbert, NIMH expert, who is one of the leaders of the mentioned global project RDoC: "Comparative research has implicitly mitigated views of human exceptionalism that supported problematic mind-brain dichotomies, and demonstrated the surprising conservation of genes, neurotransmitters, and behavioral functions across evolution — even in model animals such as fruit flies and zebrafish, let alone mammalian species such as rodents and primates" [54, p. 31].

It is obvious that modern science was not able to overcome methodological traps, which were cautioned against by L.S. Vygotsky as far back as in 1930s. We would like to rephrase Vygotsky in his criticism of J. Piaget for the latter's attempt to abandon theory in favor of empirical evidence with the aim of settling the contradictions of his day's psychology to give rather accurate description of present social cognition research: "A flood of new facts, large and small, of the first and the second magnitude, revealing new and supplementing already known matters, flooded into psychology from the pages of academic journals (Vygotsky's version: "flooded into child psychology from Piaget's papers") [6]. Further, Vygotsky writes on Piaget: "He tried to shelter himself from crisis behind solid and high wall of facts. Facts, however, betrayed him, they played false with him. They led to problems. And the problems led to a theory, however rudimentary and simplistic it was, but a true theory nonetheless, a theory Piaget was trying so hard to avoid." [ibidem]. If we substitute Piaget with the names of those hoping to prove that substrate of social cognition lies in the brain, and that the brain is also the source of disturbances and the reason of psychiatric problems, we may observe a very accurate description of RDoC's ideology. It is true, there is a theory behind it. And, once again, in Vygotsky's own words regarding absolute necessity of a theoretical background for collection and documentation of facts: "It is inevitable, it is the fate." [ibidem]. RDoC Project, colossal in its scope, is backed by a certain theory. This theory is the old concept of biological reductionism rooted in psychiatry of the 19th century, which now enjoys a second renaissance against the background of success of neural sciences and neurovisualization techniques.

Without contradicting the evolutionary basis of development of an individual's body, many well-known ex-

perts expressed doubts as to the benefits of this approach for understanding specifics of human psyche development and its disturbances caused by mental pathology. As an example, Jerome Wakefield, well-reputed American psychiatrist, draws special attention to virtual marginalization of the problem of human awareness by the discussed Project: "Inadequate emphasis on the centrality of meaning and conscious experience. Even if research shows that human exceptionalism is a mistake², the human meaning system is still a uniquely complex entity. Yet, meaning, subjective experience, and mental representations are downplayed by RDoC, except for their entering into the "cognitive" domain which, given the emphasis on circuits, seems a bit of window dressing." [85].

Allen Frances, one of the leading international experts in the field of psychiatric problem classification also lays strictures on this evident bias toward biosciences and not only in methodological aspect, but also in the context of its benefit for the practice of treatment of various disorders: "NIMH was at the center of the neuroscience enthusiasm, dubbing the 1990s the "decade of the brain" and betting the house on a narrow biological agenda to replace what previously had been a more balanced portfolio of research into not only the basic sciences, but also into treatments and health services. In effect, NIMH turned itself into a "brain institute" rather than an "institute of mental health". Its efforts have succeeded in producing wonderful science, but have failed in helping patients..." [62].

Apart from that, the problem or relations between brain, culture, and psyche is discussed in the context of the fact that neurovisualization data being the basis for global conclusions were obtained mainly on representatives of Western culture [52].

All of the things stated above form the vivid evidence of crisis within scientific system dealing with problems of development of psyche and its disturbances [36]. The essence of this crisis is purely methodological – demonstrably registered connections between activity of certain regions of brain and the process of social cognition problem-solving are viewed as the proof that this exact activity is the mechanism generating problem solution. Once again, it is hard to describe the nature of this methodological error better than it was done by L.S. Vygotsky himself: "Social nature of any higher psychical function thus far escaped the attention of researchers who could not imagine that development of logical memory or voluntary activity was a part of social conditioning of a child, since *at its biological origin and at the conclusion of psychical development this function appears as an individual function; it is only genetic analysis that reveals the way that links the initial and the final condition* (italics added) – A.Kh. [7]).

The way to overcome the stated contradictions implies the use of psychical development theory, which would consistently explain present scientific data and would offer a clue to future researches and effective practices.

In our opinion, search for such a theory is the reason for the escalation of interest to Vygotsky's work.

Over his short life span, V.S. Vygotsky tried to solve a broad range of issues. The following topics may be distinguished, to mention but a few:

- How does psyche develop within phylogenesis and anthropogenesis and what is the particularity of human psyche?
- How does psyche develop within ontogenesis?
- What are the conditions and mechanisms of normal development?
- What are the conditions and mechanisms of development disturbances?
- What are the ways to compensate these disturbances?

According to A.R. Luria's reminiscences, L.S. Vygotsky called his psyche development theory both cultural, instrumental or historical, depending on the context that was at the foreground in a particular research context. Luria explains this triality as follows: "Each of these terms reflected distinct features of the new psychological approach suggested by him. Each of them underlined different sources of the general mechanism whereby society and its history creates structure of forms of activity that distinguish humans from animals." [13].

"Instrumental aspect" emphasizes mediated, instrumental structure of higher forms of mental activity, which fundamentally distinguishes the psyche of a human from that of animals and which originates not in the process of biological evolution, but in the process of cultural evolution of humanity. Language is a major such tool, its emergence altered the course of human species principally. Apart from the concept of a special character of human psyche's morphology, it is closely related with the concept of existence of organic – natural – functions that are transformed during ontogenesis into higher psychical functions in the course of interaction of a child with an adult: "Analysis reveals that all higher psychical functions were once certain forms of psychological cooperation... and only much later transformed into individual way of behavior by transferring into a child's psychological system the structure that retains all main features of symbolic morphology even after such transfer..." [7].

"Cultural aspect" emphasizes social determinacy of methods of acquisition of knowledge and types of tool, both physical and mental. A human child raised outside of a society, would not master a language – the main tool of communication and perception of itself and the others. It should be noted that this main apparatus of human psyche may vary considerably in different cultures, depending on specifics of traditions and living conditions³. At the present time, biologic reductionism expressed as direct link between the brain and psychical functioning strongly criticized by a number of researches of the effects of specific cultures on not only various psychical functions, but also on specifics of their disturbances un-

² In this statement, the author clearly makes certain concession to the Project's ideologists and contradicts his own reasoning.

³ As an example, northern ethnic groups living among snow have many words signifying various hues of white, which is not at all characteristic for other regions.

der various forms of psychical pathologies. It is shown, for example, that such disorders as autism and schizophrenia have distinct features in different cultures [52].

There is an assumption of the transfer of psychical activity organizing apparatus accumulated by a culture from an adult to a child through communication and learning or, in other words, *the assumption that learning leads to development, makes it possible to explain differences in organization of higher psychical functions that are discovered in different cultures and evidently at different stages of development of human species*. To designate the mechanism through which this process is carried out, Vygotsky introduced the concept of “interiorization”. As is known, Vygotsky’s view of the driving forces of development is different from that of J. Piaget’s who believed that learning adapts to natural maturing of cognitive structures and that inherently autistic (i.e., detached from reality) reasoning of a child is socialized by way of violence and coercion. Properly speaking, the RDoC Project reviewed at the beginning of the article that claims the development of no less than a new classification of psychiatric problems is operating within the same logic.

“**Historical aspect**” of psyche development theory of L.S. Vygotsky supplements “cultural” aspect with the concept that the ability for interiorization originates in the process of evolution and fundamentally alters laws of development of psyche of homo sapiens, as compared with animals, and causes *the transition from natural psychical functions to higher – truly human – functions, which have instrumental morphology*. Subsequently, in the course of human history changes of features of higher psychical function organization happen not as part of biological evolution, but in the process of cultural-historical development of a society and evolution of means of accumulated experience translation. Besides that, at different stretches of development of a society certain apparatus of mental activity organization may be actual to a larger or lesser degree.

Let us consistently review the modern models of social cognition through the lens of all the three aspects sequentially. We shall begin with the historical aspect, which refers to the evolution of social understanding in the species of homo sapiens as part of phylogenesis. Development of this aspect was most vividly reflected in works of a successor of L. S. Vygotsky’s, a renowned evolutionary anthropologist Michael Tomasello who is widely cited in modern papers on social cognition [80; 81].

The “historical” aspect refers to the evolution of social cognition capacity during phylogenesis

According to the evolutionary approach to genesis, capacity of social cognition and the unprecedented success of homo sapiens in the process of evolution is largely related with the very ability of the species to comprehend and forecast actions and intentions of other creatures including representatives of the species giving humans considerable advantages. Scientists tried to discern beginnings of this ability in apes [74].

They tried to prove that chimpanzees could perceive what humans think. Results of such experiments, however, were challenged.

Later, L. Brothers, the author of the concept of social brain [47] proposed a theory that social brain and the ability to perceive mental state of other creatures developed in the process of evolution of hominids as an adaptive response to sophistication of social environment, since it offered some apparent adaptation benefits: protection from potential threat and better possibilities to achieve social privileges. Led by a prominent Swedish evolutionary genetics specialist S. Pääbo, genome of a Neanderthal man was studied and a hypothesis was offered that interbreeding of Neanderthals and sapiens occurred, since a certain share of Neanderthal genes was found in human genome. The scientist’s team offered a theory of possible influence of these genes on cognitive abilities [75] and mutation of the genes was viewed as a possible cause of such disorders as Down’s syndrome and autism.

Summarizing these developments, M. Tomasello notes that in modern science, intellectual climate if defined mainly by interest to evolutionary bases of social cognition, however, the fact that *a huge leap in development of homo sapiens could not happen on the basis of biological mechanisms, given the very short historical period, the period that was negligibly small for such changes, from the perspective of whole evolution*, is not taken into consideration [80].

However, from cultural-historical perspective, this stretch of time was enough for a colossal leap due to constant accumulation of experience of various individuals, social groups and societies over many generations to create common cultural knowledge. The author cites a famous saying of Newton’s that each generation stands on the shoulders of giants, being potential owner of all the knowledge accumulated by culture, which grows following the ratchet effect, that is, without going back. *Every serious study of human learning, stresses the author, should take into account cultural-historical and ontogenetical aspects of development (even a child’s ability to master a language and other most complex forms of human behavior amazes) that are by no means determined by biological adaptation, which provides only environment for specific forms of social cognition*.

M. Tomasello isolates the unique ability of a human child, as early as by ninth month, to perceive another individual as an active intentional agent alike itself, which conditions evolution of shared attention and later of cooperation, or shared activity. In his experiments with apes and small children, the scientist tries to prove that this is a unique ability of humans, which distinguishes them from anthropoid primates.

The author’s point is: “This opens for the child the possibility to obtain cultural experience with help from another individual. This is no more than ontogenetical nature of the concept called by L.S. Vygotsky “cultural line” of psychical development, as opposed to “natural line”. This does not mean that at the age of six month a child is not a being closely related with human culture. On the contrary, by being such a being the child is in-

involved in this culture within these months ever more actively. But until it started perceiving others as active beings with whom it can jointly direct its attention to the outside world, it merely studies the world it was born into, on its own. Only after the child starts perceiving others as active intentional agents like itself, the whole new world of intersubjectively shared reality starts to open up for it." [81].

M. Tomasello defines social cognitions as the ability of an individual being to perceive its congeners as counterparts, i.e., as those possessing focus and mental states. *This is the ability that allows it to imagine itself in "mental shoes" of others and thus to learn not only from others but also "through" others.* According to the scientist's theory, this evolutionary gain made humans able to perform such a leap in development as compared with other species. He rationally objects the supporters of theory of biological evolution as the source of various psychical abilities that it is hard to imagine any specific evolutionary changes for any one of them, starting with language. It appears that it was a singular but major change, which paved the way to other methods of learning and new forms of cognition, that is, the above-mentioned ability to perceive others as counterparts possessing focus and mental state.

The author views such pathology as autism as biological deviation, which prevents this ability from actualizing and forming, despite usual learning conditions. We can add to this, that the said ability may fail to form due to unfavorable environmental conditions, as well as due to other biological deviations, if conditions that L.S. Vygotsky called conditioning "workarounds" were created, as in the example of blind and deaf children to which cultural experience cannot be translated by usual ways.

According to Tomasello's views, the phylogenetic origins of understanding of others trace back to anthropoid apes. Experiments on these apes indicate that they possess the ability to perceive others as active intentional subjects. Ability of such primal, most primitive social perception evolves in a human child at the age of 9 months to a year and a half. M. Tomasello states, that *gap in capacity of social understanding between humans and chimpanzees arises as early as before a child learns a language based on gestures, with evolution of the ability for joint focus and joint attention that become the basis of preverbal dialog and joint activity of a child with an adult.* He also refers to known researches proving inability of chimpanzee to perform truly joint activities based on a common purpose [53].

Following L.S. Vygotsky, M. Tomasello views **interiorization** of historical forms of activities inherent to a society and the ability to **cooperate**, that is, to establish common goals and cooperation in the process of attaining the goals, as the peculiarity of human psyche [80]. *He names social motivation as one of the most important and major characteristic feature of human psyche and reasoning. This idea closely relates with another concept of cultural-historical theory — the principle of unity of affect and intellect. We will discuss fundamental significance of this concept for further development of social cognition later.*

The "Cultural" Aspect — Development of Social Cognition in the Process of Ontogenesis

At this point, it would be logical to move to the second of the three aspects of cultural-historical theory — the cultural aspect, and to try to answer the question of how, after evolving from the ability of perceiving of others as counterparts and as subjects possessing intentions, social understanding further develops within ontogenesis.

M. Tomasello distinguishes three stages in the development of social understanding: 1) perception of others as intentional subjects, that is, as subjects possessing focus and intentions, at the age of 9 months to one and a half years; 2) perception of others as mental subjects, i.e., those possessing intrinsic psychical state differing from one's own — at the age of about two years; and 3) perception of others as reflexive subjects, that is, subjects able to possess a concept of their own psychic state — at the age of about four years.

As it has been previously demonstrated, M. Tomasello describes in detail the prerequisites for development of the first stage both in phylogenesis and ontogenesis, but does not provide an answer to the question of how, based on which mechanisms transition from the first stage, which is available to anthropoid primates, to the second one related to evolution of specifically human ability to perceive mental states of other persons, becomes possible.

The solution of this problem was attempted by another follower of L.S. Vygotsky, Charles Fernyhough, British psychologist, Professor at Durham University, in his treatise "Getting Vygotskian About Theory of Mind: Mediation, Dialogue, and the Development of Social Understanding" [60]. According to L.S. Vygotsky, linguistic mediation of reasoning and behavior begins with private speech of a child. C. Fernyhough extrapolates this concept to the leap in development of social understanding from the stage of perception of others as intentional subjects to the stage of perception of others as mental subjects possessing independent attitudes and views of life.

During the period of transition to this stage, which happens at the age of nearly two years, children demonstrate private speech, which not only performs the function of regulation of their own behavior by the way of self-instruction, but also represents an externalized dialog with an adult where different positions towards a particular real-world object may be presented, which is critical for evolution of the ability to perceive others as separate mental subjects with their own visions of reality. Vygotsky wrote: "a child develops private speech... on social basis by transferring social forms of behavior and forms of collective cooperation into the sphere of personal psychical functions". [6].

In his fundamental research of speech development, D.B. Elkonin pointed to the dialogical nature of private speech: "...This confers a special form to the speech — the form of situational speech, which in most cases has dialogical nature. This speech represents either answers to questions of an adult, questions to adults related to certain difficulties in an activity, a demand to satisfy a

certain need, or, finally, questions arising out of introduction to objects and phenomena of the reality..." [41].

It is not uncommon for children of this age to speak outloud while playing, they change their positions and clearly reflect in their speech not only their wishes and questions, but also attitude of an adult: "This mouseie wants some milk — no the mouseie doesn't want milk, don't pour it"; "I will go alone — no you can't go alone." J. Verch and S. Stone demonstrated in their experiments, how a child that solved a problem in dialog with his/her mother later, while solving the same problem, independently repeats this dialog using private speech thus regulating the process of decision-making [88].

*When explaining the transition from the position of an intentional subject to one of a mental subject, C. Fernyhough builds his assertions on two key concepts of L.S. Vygotsky: 1) importance of symbolic mediation for psychical functioning and 2) dialogical nature of higher psychical functions. He maintains that this progress in a child's social understanding is based on the ability to possess self-talk, that is, dialogical thinking. The scientist substantiates this assumption by offering an original concept — **dialogical thinking (DT) model**.*

In his analysis of the well-known debate between Piaget and Vygotsky concerning private speech continued by their followers, C. Fernyhough provides many empiric evidences proving the position of L.S. Vygotsky that his type of speech performs regulatory function and has a transitory nature on the way to inner speech. He also uses Bakhtin's theory of dialogness of reasoning [2] as an important extension of theoretical developments of L.S. Vygotsky.

According to C. Fernyhough, interiorization of dialogue with adults, which occurs during transition of private speech into inner speech and further into progressively concise forms of it, play more important role in the ability to perceive psychical state of another individual than learning a vocabulary by a child to describe psychological states, as is considered by some authors [7]. Interiorization of this dialog, according to C. Fernyhough, is the foundation of dialogical thinking, which in its turn is the basis of the ability to adopt another's point of view, to see the reality from different positions, i.e., the ability for social understanding or, in other terms, for *mentalization, theory of mind — ToM*, that is, for modeling of psychical state of another person.

To prove the correctness of his theory, C. Fernyhough performed a specialized research using genetic method, which was employed by Vygotsky subsequent to Piaget. Fernyhough assumed that if the hypothesis of private speech importance were correct, success rate of solving social understanding problems by children would be directly linked with the extent of private speech at age-specific peak of its development. On the other hand, during its extinction, when excessive extent of private speech witnesses a delay in its interiorization into self-talk, this relation would be inverted, specific-

ly, the more apparent private speech is, the less successful children would be in solving social understanding problems. Assessment of three groups of children of different ages by presenting them with social understanding problems adequate to their ages clearly proved this hypothesis [60].

This approach differentiates the role of private speech at different stages of development. Fernyhough also notes the importance of analysis of a link between private speech and the type of relations with adults in specific environments. There are observations demonstrating that private speech emergence depends on social relations of a child with adults and of age-mates between one another [16].

C. Fernyhough poses a number of questions important for the future research of the development of social understanding within ontogenesis: 1) what social interactions are of most importance for the development of social understanding; 2) how do they correlate with other factors that play roles in this development; 3) what specifics of behavior of close adults promote interiorization of dialog through private speech, and using what mechanisms; and 4) at what stages of development these influences have the most effect.

The instrumental aspect — development of reflexive abilities as the central target of research of modern methods of psychotherapy

The role ideas of L.S. Vygotsky play in understanding mechanisms of psychotherapeutic interventions was discussed above [11]. Nevertheless, it is equally important to understand, why at a certain period of development of culturespecific psychological problems dominate and create demand for an apparatus for their solution.

As it has been already mentioned at the beginning of the article, social cognition evolved into a separate and important sphere and actually — into a new scientific paradigm in 1980s—1990s. Despite the fact that this was undoubtedly influenced by achievements of neurosciences and attempts to segregate a specific brain substrate responsible for social cognition processes, in our opinion, no less important reasons for increased influence of this paradigm stem from particularities of social and cultural situation that started to form in the society during the second half of 20th century.

Nancy McWilliams, renowned American specialist in psychoanalysis, the author of bestsellers published in Russian, stated the hallmark of this situation as *constant struggle of an individual for self-definition in a progressively complexifying world with its contradicting rules and multitude of cultures, media pressure and loss of clear reference behavior patterns conditioned by affiliation with a particular social strata* [14]⁴. She notes that Erik Erikson was the first to find adequate words to describe these processes in 1950—1960s, by comparing processes

⁴ As early as at the start of past century, the emergence of social psychoanalysis marked the crisis of naturalistic approach to mental pathologies mechanisms, which was characteristic both of biological psychiatry and psychogenetic models of Z. Freud. The works of K. Horney, one of the most prominent representatives of social psychoanalysis, contain keen criticism of naturalization as to human problems.

of moving into adulthood in Indian tribal cultures with its clear rules and strict hierarchy on the one hand, with the same processes in the culture of industrial American society, on the other hand. Characteristic problems of persons applying for psychological assistance at that time were difficulties related to acquiring self-identity.

The above problems considerably progressed and aggravated in 21st century against the background of information revolution, which complicated the sphere of social interaction by another order of magnitude by replacing real-life communication with virtual one, flooding Internet with easily accessible details of private lives and broadening communicating communities to hundreds and thousands members of social networks. “Information addiction”, the habit of acquiring more and more information in social networks and at various websites reduces the ability to concentrate on a given subject for prolonged periods of time and, above all, to commune with oneself and one’s experience without feeling discomfort or anxiety. Whereas Erikson’s clients painfully sought themselves in social space that was losing any defined outlines, today’s individuals “are trapped in social networks” and progressively loose contact with their individual experience. At the same time, according to a British expert in modern communications Robert Dunbar, both quality and depth of contacts with other individuals deteriorates inevitably [59].

As the specificity of modern counseling is characterized by N. McWilliams, “the clients undergoing therapy today often need to generate conscious understanding of who they are”. This was not characteristic of the patients of Z. Freud, who were suffering from conflicts between the existing social taboos and repressed impulses [14].

Psychological science expectedly reacts to the mentioned “tectonic shifts” in social and cultural situation by offering concepts and models to describe processes occurring in society and in individual human psyche. However, researchers often forfeit historic outlook on the problem and resort to naturalistic paradigm by stating absolute supremacy of specific mechanisms of development or its disturbances.

All that has been mentioned above allows us to assume that the overflow of psychology literature with various terms, which reflect different aspects and mechanisms of social cognition in their own manner, reflects, above all, problems of life and health of the individual in modern society. The long list of concepts defining processes of social cognition used by different academic conventions and schools (*mentalization, theory of psychical, self-reflection, empathy*) was recently supplemented with another concept of **mindfulness**, which progressively pervades psychological practice [12; 25; 38; 45; 46]⁵.

A mere glance at the curve of growth of works dedicated to this ability published in scientific periodicals over the past three decades proves that this is a true boom within academic community (Fig. 1.)

Domestic specialists assimilating the approaches based on mindfulness face translation problems, namely, the absence of a suitable equivalent to this concept in Russian. The existing brief variants of translation to Russian are inadequate in conveying its meaning (awareness, attentiveness, meaningfulness). In other cases, translation is adequately correct but too awkward: “a full and non-judgemental perception of immediate experience”.

Academic Articles on Mindfulness pubmed - mindfulness count

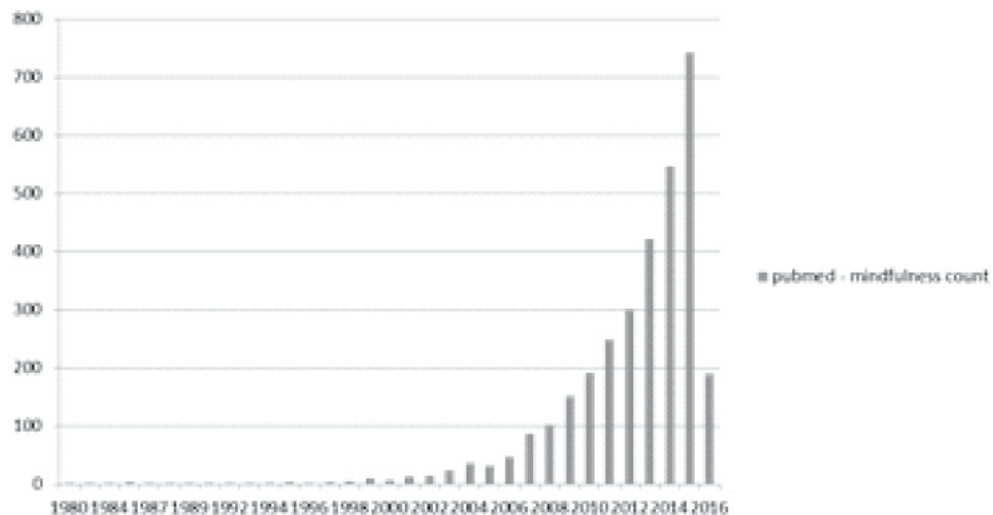


Fig. 1.

⁵ Approaches most often associated with development of this ability are as follows: dialectical behavior therapy – DBT developed by M. Linehan (Linehan, 2008), acceptance and commitment therapy – ACT developed by S. Hayes (Hayes, 2004) mindfulness based cognitive therapy – MBCT) researched by J. Tisdale and his colleagues (Teasdale et al., 2002) and metacognitive therapy – MCT) developed by E. Wells (Wells et al., 2008, 2011).

For this reasons it was decided to leave the term without translation⁶. In the Western, primarily in American, society the concept of mindfulness is gradually becoming a part of public vocabulary — it is discussed by general press as a quiet revolution, which unfolds in various communities. Exercise of this ability became something of psychical fitness, much alike physical fitness exercises that had become popular in the recent decades.

In the sphere of psychiatric problem therapy, one of the first experts to use the term “mindfulness” was J.Kabat-Zinn, Professor of Massachusetts University [67] who introduced a number of principles and exercises from ancient Buddhist practices into his treatment methods. Since then, this concept has not only been assimilated by modern psychology and psychotherapy, but has also been developed considerably in the works of various authors [21; 34].

We believe that the above boom of Oriental meditative practices is also closely associated with the differences in social and cultural contexts of the East and the West — the deficit of a tranquil observational mode in a Western individual who constantly chases all kinds of achievements and changes⁷.

A growing number of researches reveals a direct connection between mindfulness and abilities traditionally attributed to processes of social cognition, primarily with the ability for empathy, and the level of emotional intelligence [42]. Against the background of these discoveries, numerous workshops were established by caring professionals to assist in development of mindfulness abilities. It is recognized as the basis of preventative therapy of professional burnout, as well as of a caring and conscious attitude towards patients and individuals requiring certain assistance. Champions of this movement call up Western medical science to join the colors of mindfulness [29].

Well-known representatives of psychodynamic tradition begin to address the concept of mindfulness and associate it with the term of “mentalization”, which during the last few decades is being actively developed by psychodynamic therapists. As an example, Otto Kernberg, the most distinguished representative of the psychodynamic branch of psychotherapy, emphasizes that both mentalization and mindfulness are possible only subject to a mature structure and integrated object representations [68]. He states, that mindfulness means the ability of being aware of feelings and focusing on them without acting out directly in the result of such feelings. Mentalization, the ability to model and perceive an individual's own and others' psychical state, is also the key process for emotional regulation.

From this perspective, close relation of psychological practice and social-cultural context is reflected by tendencies of development of the two leading schools of psychotherapy represented by psychodynamic and

cognitive-behavioral paradigm finally resulting in their confluence in the field of social cognition paradigm [21].

The tendencies of psychotherapy development discussed above demonstrate close relation between socio-cultural situation and actual apparatus called upon to cope with the challenges that development of civilization brings to a man, and to mitigate the destructive effect of culture.

In Russian psychology of reasoning, interest in the concept of “self-reflection” arose in 1970s, when psychological counseling practices were nonexistent [1; 10; 22; 30]. N.G. Alekseev became one of the first specialists to start working on it, he was a researcher whose contribution to the development of scientific research methodology is yet to be appreciated. In 1981, at one of house workshops dedicated to this problem *he proposed the idea that in the second half of 20th century self-reflection became the central concept due to the particularities of social-cultural situation*. He considered the ability to establish relations between various content to be one of crucial characteristics of self-reflection. He called awareness of self “singular self-reflection” since there is no Other to establish relations with, consequently, alike Vygotsky he pointed out genetic origin of higher psychical functions on the basis of communicative social space. N.G. Alekseev associated the source of the society's interest in self-reflection with philosophy of early modern period when along with the idea of equality of individuals the ability to establish relations started to acquire value.

In his substantiation of the growing importance of the concept of “self-reflection” in the second half of 20th century, similar to early modern period, N.G. Alekseev revealed specific social-cultural conditions promoting it⁸:

- evolution of very varying cultures within the same humanistic region;
- loss of and search for the absolute (degradation of values, growing relativity of values);
- increasing specialization of labor and absence of professional stability (the need for mobility or the ability to retrain), which poses problems in cases when an individual did not develop the ability to establish relations between professions or cooperative members and to establish relations between his/her and other activities; and
- volatile character of interactions between individuals (many relations require establishment of relations between values, habits, temperaments, etc.).

N.G. Alekseev enunciated his surprisingly exact prediction of perspectives of the concept of “self-reflection” in science and practical applications in a brief formula, which I recorded verbatim during a workshop: “The practice of self-reflection shows the distinct demand of our day. Understanding this social-cultural context increases our capacities in studying self-reflection.”

⁶ This reminds a relatively recent introduction of the term of “procrastination” (the tendency to delay activities) into vernacular of Russian specialists.

⁷ This contrast is very vividly illustrated by a story of a young lady relating about her travel to India. Once, when she was as always hurrying to realize her regular intense schedule of activities in India, an attendant suggested her to stop, sit down for a bit and have a look around. “Why should I do it?” — asked the European lady. — “I am not tired”. To which the local answered: “To wait for your soul”.

⁸ Back at that time, in 1980s, N. G. Alekseev paid attention to the religious renaissance in Russia and associated it with the search of the absolute. He maintained that if this tendency would gain momentum (search for the absolute not only in terms of God, but also in terms of stability of rules), enthusiasm about self-reflection would subside.

Indeed, modern psychotherapy focuses on the problem of compensation of reflexive abilities deficit, it refines apparatus for development of reflexive functions. What is more, as was demonstrated above, this applies equally to both main schools — the psychodynamic and the cognitive-behavioral. Based on the concept of “mentalization”, which refers to the ability to perceive one’s own mental states, as well as those of others, one of the most outstanding and consequential lines of modern psychodynamic psychotherapy develops, which is called just that — **mentalization-based psychotherapy** [3]. What concerns cognitive-behavioral psychotherapy, it included from the very beginning sophisticated techniques serving to build the reflexive ability (diaries recording thoughts and feelings that underpin various behavioral patterns, Socratic dialog, etc.). As was repeatedly demonstrated by us, main steps of cognitive therapist’s activity amount to a reflexive act driven to dialogical space of interaction with a patient, and its gradual interiorization leads to overcoming deficit of reflexive ability. The structure of reflexive act was described by N.G. Alekseev following Fichte’s ideas, and later it was elaborated by V.K. Zaretsky. In similar fashion, we reviewed practices of cognitive therapists, starting from innovative works of A. Bek and following through to modern techniques of development of mindfulness [34; 35; 40]. The result of consistent exercise of these techniques is mastery of personal reasoning, emotions and behavior — the ability of **self-regulation**.

According to J. Verch, “...the emergence of the ability to self-regulate in ontogenesis is the central topic of work of Vygotsky and his followers...his concepts of self-regulation may be understood properly only if we perform genetic analysis tracing back to the origins of self-regulation” [89, p. 66]. A brilliant genetic analysis of the origins of self-regulation of social cognition processes performed by M. Tomasello and C. Fernyhough is stated in dedicated sections of this article.

A naturally determined question arises — in what age period does the most intensive further development of social cognition processes occur and its conscious mediation by reflexive apparatus originates (its deficiency in cases of mental pathology was stated previously). As was noted by R. Gur, an expert of RDoC Project responsible for the domain of social cognition, distinct improvement of social cognition occurs during the period of 7 to 21 years [65], thus the path towards social cognition lays through adolescence.

Transition to higher forms of social cognition is the problem of sensitive period

Adolescence has always attracted the attention of various researchers. A decent number of works is dedicated to its particularities [20]. Leading specialists in the area of developmental psychology note considerable shifts of adolescence and its specifics in the modern world [31; 33].

It is all the more surprising that there are relatively few papers on development of social cognition in youth

[32]. Apparently, the majority of researchers, both domestic and foreign, are interested in the problem of, starting what moment and under the influence by what factors children begin to perceive intentions and feelings of another person and to emphasize with that person. One way or another, the main corpus of researches of social cognition development within ontogenesis concerns children under or just entering adolescence.

If we turn to Vygotsky again, we may note that he has two particular works dedicated to adolescence and what is important is that one of those — “The Problem of Age” [8] was written at the height of his research maturity — during the final two years of his life. It is in this very work that Vygotsky elaborates one of the concepts most important for future research of social cognition factors in ontogenesis — **the concept of social situation of development**.

In the second paper — “Teenager Pedology” — Vygotsky emphasizes that “...the key to age-specific understanding of psychology... lies in the problem of focus, in the problem of driving powers, in the structure of impulses and aspirations of a teenager” [4]. *Referring to works of his contemporary A.B. Zalkind who studied adolescent needs, L.S. Vygotsky notes egocentric attitude as the main property of adolescent thinking and elaborates its particularity as increased interest of a teenager to himself/herself. That is, this period may be viewed as the sensitive period for development of reflexive ability. Overcoming egocentricity occurs through communication with others since only through establishment of relations between one’s interior life and lives of others one is able to develop self-reflection.*

In these latter days, papers referring to Vygotsky’s works started to appear substantiating the necessity and importance of research of SC particularly during adolescence. Among such papers, we would like to mention, above all, a review paper of Italian researchers: “No more a child, not yet an adult”: studying social cognition in adolescence” [46].

Having noted the limited number and fragmented nature of works dedicated to SC of teenagers, A. Brizio et al. [46] conclusively substantiate the need to change the state of affairs and name a number of important reasons related to peculiarities of social situation of adolescent development:

1) this is the age when a former child progressively turns towards the outer worlds and expands his/her relations with it, establishes progressively close relations with age-mates and progressively communicates outside of his/her family, thus load on social cognition processes increases sharply and they become instrumental in successfulness of social integration, which is one of the main objectives at this age;

2) in modern world, the number of teenagers and young adults in the ages of 10 to 14 years is one of the largest throughout the entire history of humanity — 1.8 billion, that is, a quarter of global population. Besides, social situation of development is very different for many of them: the majority of teenagers lives in countries with low or medium income level, with high birth rates (according to Vygotsky, for teenagers of lower so-

cial classes social maturity, which is dependent on social criteria, is recorded at a younger age, whereas in more successful social strata the gap between sexual, organic and social maturity of a child steadily increases thus creating and escalating the main conflict of this age: “this is culture, historical development of the humanity breaks biological harmony of maturing...” [4];

3) *major psychiatric problems manifest themselves at this particular age*: schizophrenia [82] and affective spectrum disorders [51];

4) at this age, risk to physical health peaks due to traumas of various genesis, drug abuse, aggression and self-aggression and suicides, totaling as the major cause of mortality during this period [49]; and

5) there are evidences that peer pressure, inadequate maturity of psychical structures and forming neuronal bonds contribute to the effect of problems associated with emotional regulation and balanced decision-making underpinning the above-mentioned risks to psychical and physical health of teenagers.

The authors of the article conclude that it is critical to attract researchers and methodologists to solve real-life problems posed by adolescence. It should be noted that the Italian scientists who adhere to principles of cultural-historical psychology and cite L.S. Vygotsky emphasize that the concept of adolescence may vary among different cultures and theoretical concepts. Whereas the onset of adolescence is defined by biological body changes, its conclusion and transition to adulthood largely depend on society. The authors distinguish the period of 10 to 24 years as the period of transition from childhood to adulthood in European society [46], however, following Vygotsky they stress that there are no natural or biological criteria to determine the conclusion of adolescence and the beginning of adulthood. This stretch of time is determined and fashioned by culture and society. It is obvious that following development of a society, the main conflict of this age – the gap between biological and social maturity – progressively escalates.

Using the vocabulary of cultural-historical theory of psyche development, A. Brizio and her collaborators note that by the moment assumed by society as the boundary of social maturity a teenager should be adequately equipped with *cultural tools*, which should make it possible for him to comprehend the greater world of social relations, as well as themselves and other individuals. While a teenager is not equipped with such tools adults should be tolerant to him/her and assist in mastering of these tools by associating (again, L. S. Vygotsky's concept) *with the zone of his/her proximal development* [46; 56; 84].

To be no more a child, not yet an adult, means, on the one hand, to set goals and prepare oneself to future independent life and on the other – to allow oneself to exploit the advantages of childhood and limited responsibility.

It is exactly when one is going out to the greater world that advantages and weaknesses of social understanding abilities already acquired by teenagers manifest themselves and situations evolve, which are favorable or unfavorable for further development if these abilities.

Family environment continues to play a large role in in social situation of teenager's development, however, extrafamilial stimuli, as well as communication with age-mates, become progressively important. If a teenager is able to integrate into social medium of age-mates, he or she feels more self-assured and his/her self-esteem is not subjected to such stress as in the cases of those who are for certain reasons rejected by a community.

The crucial role in the process of social cognition belongs to culture as a whole, that is, by macro-social factors or social structure that a teenager faces after leaving family for the greater world. Meta-analysis of papers on modern aging [90] demonstrate how social environment radically changes during transition from childhood to adolescence, how separation increases and how the need for autonomy from parents peaks at this age, how interest to politics, problems of society and civilization as a whole arises, as well as interest to finding one's own place in this complex space of cultures and subcultures with their specific values and rules. All this requires progressive development of self-understanding and understanding of other individuals with which a teenager engages in interactions varying in intensiveness and closeness, by adopting different roles.

From the things that have been stated, it could be seen that modern culture makes higher requirements to reflexive functions, just as was predicted in 1980s by N.G. Alekseev (see. above). In this regard, research data of N.N. Tolstych and A.M. Prikhozhan present interest in respect to reduction of the need of self-understanding and self-reflection of a modern teenager, as compared to teenagers of 1970s [20]. One of the reasons for this may be in supplanting of *face to face contacts* with communication via social networks, which leads to decrease of the level of emotional closeness and intimacy of communication [38; 39]. It could be assumed that reflexive functions become more of a problem zone of development of the younger generation. At the same time, as was mentioned above, load on these functions is constantly growing. This contradiction perhaps is the one of the major sore points of the modern aging.

Methods of research of social cognition ability alter by age. Naturally, more complicated tasks are presented to teenagers rather than to younger children, however, it is interesting to compare the results of performance of the same tasks at different ages. For example, researchers asked young children, teenagers and adults to solve a problem in which they had to reflect on one's own emotional state (*first person perspective*) and on that of another individual (*third person perspective*) in different situations [50]. It appeared that the ability to shift perspective improves with age. Similar results were obtained in a like research of subjects in the ages of 7 to 27 years by another group of scientists [58] – the ability to shift perspective grows from young age to adolescence and further to adulthood.

Interesting data were obtained by Fett et al. [61], who showed that the ability of teenagers to change perspective in cooperation tests is associated with a more pro-social behavior and higher level of trust to partners. A group of Italian researchers headed by one of the au-

thors of the review paper cited above, which proves the necessity to study social cognition processes in adolescence [44], realized a project of research of junior and senior teenagers based on a semi-structured interview and experimental tasks testing the degree of development of the mentalization ability. This research also confirmed the expressed age dynamics – from junior to senior teenagers. It was revealed that teenagers are able to recognize their own states better than those of others, since the latter suggests a developed ability for perspective shift. The described phenomena correlate with the known data on adolescent egocentricity.

The research of adolescent empathy (that is, the ability to respond adequately to emotions of others) was performed by C. Sebastian et al. [76].

It appeared that in selecting a relevant answer for captions to describe situation experienced by another individual, answers of teenagers were less adequate than answers of adult subjects.

A growing number of research works is dedicated to the concept of social brain discussed above and its development during adolescence. In a review by Blakemore [43] it was shown that researches reflect a rapid development of “social brain” in teenagers. Latest researches are focused on establishing associations between the level of performance of social cognition tasks (e.g., between emotion recognition and development of “social brain”) structures in girls at the ages of 11-13 years [69]. The results witness that girls with more functionally mature structures of social brain have better results. Goddings et al. also notes the growth of amygdaloid body in adolescence [63]. This body participates in processes of emotion recognition. Development of these structures of brain leads to increased ability to regulate one’s own emotions and to better cope with stress in the presence of significant affective stimuli [78]. It is obvious that development problems associated with these structures may bring about vulnerability to various forms of psychological pathology [55].

In more recent times, there is a growing interest to behavioral models of development of depression and other disorders related with deficit of the ability to perceive reinforcement, i.e., to enjoy whatever gives pleasure (praises or other forms of reinforcement). In practice, we are talking about such a mechanism as reduction of the ability to experience pleasure or anhedonia – a construct, which steadily attracts attention of researchers of social cognition and its disturbances caused by psychological pathology [26]. It was found out that it was exactly in adolescence that structures associated with reinforcement sensitivity develop, that is, structures preventing anhedonia [64].

Anhedonia may affect social motivation substantially by reducing focus on other individuals (in more detail, *ibidem*). Authors of theoretical model of teenage depression mechanisms believe that it is reduced sensitivity to reinforcement that leads teenagers to evaluate various social situations falsely and in a way very negatively toward themselves, which eventually leads to depression [57; 72].

Desensitization as to reinforcement in social relations may be viewed as a mechanism of **social anhedo-**

nia – disturbance of social motivation of communication and reduction of the need for contacts with others. Of obvious interest are researches of its effect on the development of social cognition processes during adolescence – a period of ontogenesis when psychological pathologies including depression and schizophrenia manifest themselves most often. Lately, the role of anhedonia in social cognition disturbance caused by schizophrenia was proven in a number of papers [15; 23; 27].

Still other research is dedicated to the analysis of the relationship between neurocognitive development with emotional regulation in the context of teenagers’ particular sensitivity to rejection, that is, to negative assessment by others [77]. The analysis shows that at neurocognitive level there are problems with functioning of regions responsible for emotion regulation, which may make teenagers particularly sensitive to negative assessment by others. Rejection sensitivity is closely related to social anxiety. According to present data, incidence of social anxiety peaks at two ages – 5 and 13 years [70]. This is why research of adolescent social anxiety in the context of social cognition problem is also of a great interest. Data was acquired supporting the important role of family communications in growth of social fears of children, especially in cases when parents tend to suppress intrinsic activity of children and control them [18; 19].

It would be logical to assume that social anxiety may lead to the distortion of social motivation and domination of avoidance behavior. Reduction of contacts with individuals leads inevitably to underdevelopment of the ability of social cognition, which is closely related to communication experience during which apparatus necessary for mentalization and empathy is mastered. Accordingly, development of brain structures associated with social cognition may be hindered as the result of poor practice of social relations against the background of high anxiety level and avoidance related to it.

We have stated above that adolescence in and of itself is an important risk factor associated with various incidents and circumstances detrimental to physical and mental health. This is why it is so important to answer the question of the role social cognition plays in coping with various traumatic circumstances. A specific research was dedicated to the role of social cognition in coping with traumatic stress by teenagers [83]. Summarizing the results of a survey of 142 teenagers undergoing treatment at a hospital, the authors empirically confirmed the proposed hypothesis that disturbed social cognition, which stems from disturbance of affection plays an important role in development of posttraumatic stress disorder in teenagers. This implies the need to hold special training sessions for teenagers that should be focused on increasing their ability of mentalization and empathy with the purpose of preventing psychological problems. It should be said, however, that purely technical training is doubtful to solve the problem of distrust of the world, which is why practitioners will inevitably face the problem of reliable affection, dysfunctional convictions and negative social motivation.

Summarizing our brief review of social researches dedicated to teenagers’ social cognition, we need to emphasize

again that the direct analogy between processes occurring in nervous system and social cognition is methodologically false and that social brain is only one component of the background (along with social context and social cognition development situation) against which aging and concurrent development of social cognition processes occur. Translation of cultural means of self-regulation in a suitable social situation of development is the central mechanism of development of social cognition.

A Comprehensive Multi-Factor Model of Social Cognition Based on the Concepts of Cultural-Historical Psychology

In the development of the model described further, we tried to integrate the fundamental principle of study of reasoning proposed by L.S. Vygotsky which, as far as we can see it, did not attract much attention of social cognition researchers. "Reasoning and Speech" is one of the fundamental works of Vygotsky that is often cited in modern papers on social cognition. As early as at first few pages *Vygotsky articulates the link between motivation and reasoning as the fundamental principle of his study*: "The first question, which arises when we discuss relations of reasoning and speech with the rest of facets of consciousness, is the question of link between intellect and affect. As it is known, the divorcement of intellectual part of our consciousness from its affective, voluntary part represents one of the major and deep flaws of all traditional psychology... Whoever divorced reasoning in the first place from affect, block the way to an explanation of reasons of reasoning itself, since deterministic analysis of reasoning inescapably assumes the need to reveal guiding motifs of thought, needs and interests, impulses and tendencies that direct train of thought this or that way" [6].

By performing the analysis of relationship between affect and intellect, Vygotsky introduces the concept of a semantic system representing the unity of affective and intellectual processes. According to him, this analysis "... makes it possible to reveal the direct progression from impulses of an individual to a known line of reasoning and reverse progression — from dynamics of thought to dynamics of behavior and specific activities of a person" [5].

With regard to the problem of social cognition, the principle of unity of affect and intellect transforms into the necessity to study the role of social motivation in emergence of higher forms of social cognition. According to our hypothesis, from the very birth a child's focus on other individuals, which is present from infancy, is the most important regulator of social cognition processes. The fate of this focus obviously depends on biological prerequisites as well, however, behavior of a close adult and the quality of emotional contact developed between this adult and the child, that is, social interactive processes play crucial role in its development.

Based on the above-stated hypothesis of Tomasello that the ability for shared attention is the main marker and the source of further development of social cognition process, experiments on infants were performed. In 2015, K. Brink et al. published a fundamental review of a series of experimental researches of social understanding based on the method of recording of time of eye focus of a child on an object of intentional focus of another (adult) individual (marker of this focus of the adult was focusing his/her look on the object in the form of staring) [45]. This indicator of ability of shared attention was used as the marker of level of development of social understanding in children aged 6 months and older.

The authors summarize the study of the factors underpinning the ability of sustained shared attention, i.e., continual staring at an object of regard common with an adult. It was found out that this prerequisite is determined by nature of interaction with mother, above all, character of attachment — children with reliable attachment were able to fix their look at an object of interest of another individual (that is, express the ability of shared attention) for a longer time than children of mothers displaying over-patronizing or detached behavior in relation to the child.

The data of various studies are congruent to each other and conclusively confirm the important role of a reliable attachment in the development of the ability for social understanding and the necessity to integrate cultural-historical theory with the attachment theory of J. Bowlby in social cognition models [37]. In this regard, attachment type may be viewed as the most important motivating part of social cognition, which determines future structure of affiliation motivation, that is, the drive towards individuals or against them.

Let us review the prospects of development of a model of SC based on the concepts of cultural-historical theory stated above. Its foundation was laid in studies of social intellect disturbances in schizophrenics [15; 24; 25; 26; 27]. We must state innovative research performed in 1980s under the direction of B.V. Zeigarnik and Y.F. Polyakov as some of the most important keystones this model⁹. The model is further developed and elaborated under a project supported by RSF.

On the one hand, the proposed model is a comprehensive one, since it includes different components, and, on the other hand, it is a multi-factor model because it is focuses on regarding a system of factors that affects development of SC and its disturbance in cases of psychological pathologies. Structure of SC includes the following components: 1) motivation component — in accordance with the principle of unity of affect and intellect; 2) reflexive component — in accordance with the concept of conscious nature of higher psychological functions; as well as 3) operational and 4) behavioral components that, in accordance with concepts of instrumental nature of human psyche mediated by culture include internal methods (skills, strategies) of social cog-

⁹ Back then, when even the term «social cognition» was not yet coined, vast empirical evidence was obtained regarding disturbances of motivation component of reasoning, its semantic and reflexive regulation, as well as on general communicative focus of reasoning of schizophrenics (Nikolayeva, Kochenov, 1983; Sokolova, 1975; Zaretsky, Kholmogorova, 1983; Zeigarnik, Kholmogorova, 1985; Kholmogorova, 1983; Kritskays, Meleshko, Polyakov, 1999).

nitiation interiorized as the result of mastering of relevant means accumulated by culture.

Development of this model on the basis of L.S. Vygotsky's assumption of natural and higher psychical functions, will make it possible to present the structure of SC as a complex higher psychical function whose components are hierarchically interconnected and are related to two layers: 1) the higher – motivational layer, which unites motivational and reflexive components; 2) subdominant executive layer, which corresponds to operational and behavioral components.

Let us review each of the four above-mentioned components.

1. **The motivational component of SC** is described in the model as focus of an individual on other persons or, conversely, disregard of social contacts up to the point of the tendency to avoid contacts with others. It should be noted that the need for such contacts may remain quite acute and behavioral avoidance may conceal fear of rejection. In effect, the meaning of motivational component of SC is similar to the concept of affiliation motives. Communication motivation structure includes, according to one of its well-known models [30], two sustained motives of a person: affiliation tendency (the drive for acceptance and contact with various individuals, both closely related and virtual strangers) and sensitivity of an individual to rejection by others (fear of rejection). Here, drive for acceptance should be understood as the need in other individuals, preference of a company to other types of activity, as well as the tendency to gain support of others in overcoming real-life complications. We are particularly interested in fear of rejection, which is directly associated with social anxiety that became one of the central epidemiologic trends of our time, especially among children, teenagers and young adults. Expressed fear of social assessment and a high level of social distress (discomfort related to contacts), as well as social anhedonia (absence of communication pleasure) compose what in the context of the model we shall designate as negative social communication motivation. High level of empathic care, by contrast, may reflect focus on another individual, that is, positive, altruistic social motivation.

2. **The reflexive component of SC** is closely connected with consciousness and voluntary regulation of social cognition processes. Study of this component makes it possible to assess the ability to direct and make conscious, to purposefully organize, mentalization process or one's own behavioral strategy during contacts with others, as well as to assess their effectiveness as methods of social cognition and make decisions towards their reconstruction if necessary. The ability of decentration and consideration of position of another individual implying the skill of looking at a situation through the eyes of the other is an important mechanism of self-reflection.

3. **The operational component** reflects all contracted and automated skills of assessment, interpretation and decision-making in social situations, the ability of understanding and recognition of emotional, intellectual and physical state of another individual. It should be stressed that mentalization processes may occur both at operational and reflexive, conscious, level. The better processes of social cognition are developed, the broader are possibilities for an individual for conscious reflexive regulation.

4. **The behavioral component** includes, above all, sustained strategies of information processing and overt behavior, which may be more or less perceived and available for regulation. Behavioral component's particularity lays mainly in primarily utilized strategies of behavior in social interactions. Among them there are, for example, avoidance, social comparisons, social aggression, etc.

The theory of the role of culture in a general sense and its particularities during various historical periods elaborated by L.S. Vygotsky in the concept of social situation of development implies analysis of the system of social impact factors defining, based on interiorization mechanisms, development of an individual and system of his/her relationships with the world. The multi-factor psychosocial model of affective spectrum disorders [9; 40] developed using the background of assumptions of cultural-historical concept may be accepted as the basis of studies of factors conditioning disturbances of SC. The model involves four levels (macro-social, familial, individual and interpersonal) at each of which a series of factors may be distinguished that affect processes of SC and its disturbances.

1. **Macro-social level** includes such factors as cultural rules and values, practices and methods of interaction, etc. At the current historical period, processes of SC are increasingly largely affected by such technical means as Internet and mobile communications, which cause progressive shift of interpersonal communication toward blogs, websites and social networks. A question arises, how will contraction of face to face communication of the younger generation affect translation of social cognition apparatus during development of the higher regulatory level of social cognition (the motivation to communicate and reflect). At this moment, there are already some data indicating that preference of social network interaction and the time a teenager spends in social networks is directly linked with growth of social anxiety, i.e., negative social motivation to communicate [17; 73].

2. **Familial level** involves such factors as type of affection, or, according to J. Bowlby, the nature of familial communications, the rules regulating communication style within a family, the extent of attention a family dedicates to psychical and emotional life of its members, the ability of meta-communication or discussion of one's own emotional or psychical life, etc. At the current historical period, we observe shortening of time spent together in real-life contact with family members, which is also largely associated with advancement of technical means of communication, as well as with weakening of relations between generations within families.

3. **Individual-personal level** includes such factors as personal traits and convictions that determine motivation, style of interaction and behavioral strategies in social relations and affect the development of emotions and reflexive abilities. The trait of perfectionism is characteristic for modern culture, it plays an important role in mental problems of the modern man; besides that, hostile attitudes, which distort SC processes should be noted specifically. This level also includes certain stable characteristics of cognitive sphere, which may affect processes of social cognition (e.g., general intellect).

4. **Interpersonal level** includes such factors as breadth and quality of social bonds of an individual that provide social support (including instrumental and emotional), frequency and depth of contacts with other people, etc. As was mentioned earlier, one of the consequences of technical progress is reduction of face to face communication against the background of broadening options of indirect communication and increase of time spent in virtual interaction, which necessarily affects breadth and quality of social contacts. This is a fact, which already draws attention of researchers [59].

Figure 2 schematically presents a comprehensive multi-factor model of SC.

Conclusion

The author of the article has discussed theoretical and empirical researches and practical methods of devel-

opment of social cognition from the standpoint of cultural-historical psychology. The article demonstrates that cultural-historical concept of psyche development proposed by L.S. Vygotsky assists researchers in overcoming methodological deadlocks and in answering complex questions as to the origin of the ability of social cognition within phylogenesis and ontogenesis, in explaining prevalence in the modern society of psychotherapeutic methods focusing on compensation of diminishing reflexive functions and in proposing a theory that adolescence is the sensitive period for development of higher forms of social cognition. The proposed comprehensive multi-factor model of SC (see Fig. 2), which is based on concepts of cultural-historical theory of L.S. Vygotsky requires further elaboration focusing on negotiation of reductionist biological approaches and on substantiation of the leading role of culture in processes of SC on the basis of comprehensive study of various psychosocial factors and components of SC.

Многофакторная комплексная модель СП, основанная на культурно-исторической теории:

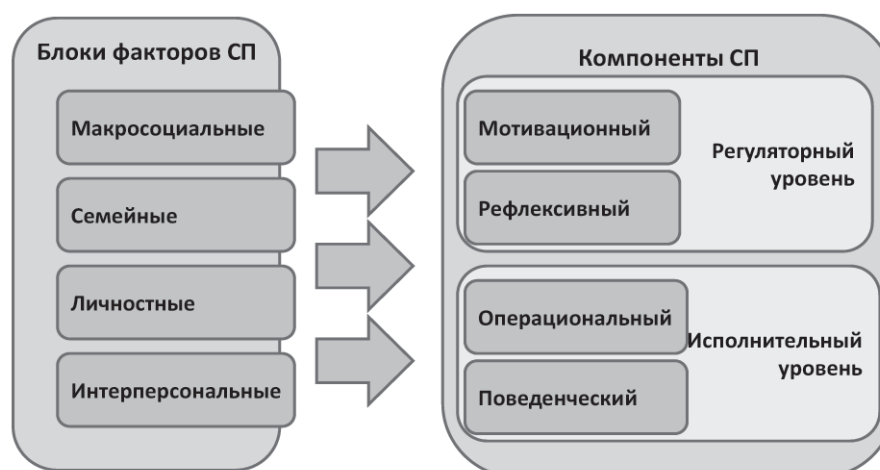


Fig. 2

Многофакторная комплексная модель СП, основанная на культурно-исторической теории:	Comprehensive multi-factor model of SC based on cultural-historic theory:
Блоки факторов СП	Series of factors of SC
Макросоциальные	Macro-social
Семейные	Familial
Личностные	Personal
Интерперсональные	Interpersonal
Компоненты СП	Components of SC
Мотивационный	Motivational
Рефлексивный	Reflexive
Регуляторный уровень	Regulatory level
Операциональный	Operational
Поведенческий	Behavioral
Исполнительный уровень	Executive level

Financial Support Acknowledgments

This article was prepared with the financial support of Russian Science Foundation (grant No. 14-18-03461) at FSBI FMRCPN of Ministry of Health of the Russian Federation.

References

1. Alekseev N.G. Proektirovanie uslovii razvitiya reflektivnogo myshleniya: diss.dok.psihol.nauk [Design conditions of reflective thinking development]. Moscow, 2002.
2. Bakhtin M.M. Problemy poetiki Dostoevskogo [Problems of Dostoevsky's Poetics]. Kiev, 1994. 511 p.
3. Beitman E., Fonagi, P. Lechenie pogrannichnogo rasstroystva lichnosti s oporoi na mentalizatsiyu: prakticheskoe posobie [Mentalization – based treatment for borderline personality disorder]. Moscow: Institut Obshechegumanitarnykh Issledovaniy, 2014. 248 p.
4. Vygotskii L.S. Pedologiya podrostka [Adolescent pedology]. Moscow, 1930. Vol. 2. 167 p.
5. Vygotskii L.S. Istoricheskii smysl psikhologicheskogo krizisa [The historical meaning of psychological crisis]. In Vygotskii L.S. *Sobranie sochinenii: v 6 T.* [Collection of works]. Moscow: Pedagogika, 1982, pp. 291–436.
6. Vygotskii L.S. Myshlenie i rech' [Thinking and speaking]. In Vygotskii L.S. *Sobranie sochinenii v 6 T.* [Collection of works]. Moscow: Pedagogika, 1982, pp. 5–301.
7. Vygotskii L.S. Orudie i znak v razvitiy rebenka [Tool and sign in child development]. In Vygotskii L.S. *Sobranie sochinenii v 6 T.* [Collection of works]. Moscow: Pedagogika, 1982, pp. 291–436.
8. Vygotskii L.S. Problemy detskoj (vozrastnoj) psikhologii [Problems of children psychology]. In Vygotskii L.S. *Sobranie sochinenii v 6 T.* [Collection of works]. Moscow: Pedagogika, 1984, pp. 243–432.
9. Garanyan N.G., Kholmogorova A.B. Mnogofaktornaya model' depressivnykh, trevozhnykh i somatoformnykh rasstroystv kak osnova ikh integrativnoi psikhoterapii [Multi-factor model of depressive, anxiety and somatoform disorders as a basis of integrative psychotherapy]. *Sotsial'naya i klinicheskaya psikhiatriya* [Social and clinic psychiatry], 1998, no. 1, pp. 94–102.
10. Zaretskii V.K. Stanovlenie i sushchnost' reflektivno-deyatelnostnogo podkhoda v okazanii konsul'tativnoi psikhologo-pedagogicheskoi pomoshchi [Formation and essence of reflective-active approach in providing psychological and educational assistance]. *Konsul'tativnaya psikhologiya i psikhoterapiya* [Counseling psychology and psychotherapy], 2013, no. 2, pp. 8–37.
11. Zaretskii V.K., Kholmogorova A.B. Mozhet li kul'turno-istoricheskaya kontseptsiya L.S. Vygotskogo pomoch' nam luchshe ponyat', chto my delaem kak psikhoterapevty [Can Vygotsky's Cultural-Historical Concept Help us to Better Understand What We Do as Therapists?]. *Kul'turno-istoricheskaya psikhologiya* [Cultural-historical psychology], 2011, no. 1, pp. 108–118.
12. Laine M. Kognitivno-povedencheskaya terapiya pogrannichnogo rasstroystva lichnosti [Dialectical behavior therapy for borderline personality disorder]. Moscow: Sankt-Peterburg: Kiev, 2008. 590 p.
13. Luriya A.R. Vysshie korkovye funktsii cheloveka [Higher cortical functions of human]. Moscow: Publ. MGU, 1962. 431 p.
14. Mak-Vil'yams N. Formulirovanie psikhoanaliticheskogo sluchaya [Psychoanalytic Case Formulation]. Moscow: NF "Klass", 2015. 328 p.
15. Minakova K.Yu., Kholmogorova A.B. Sotsial'naya anedoniya, depressiya i sotsial'nyi intellekt u bol'nykh shizofreniei: sushchestvuet li svyaz'? [Social anhedonia, depression, and social intelligence in patients with schizophrenia: is there a connection?]. *Psikhicheskoe zdorov'e* [Psychological health], 2014, no. 12, pp. 52–69.
16. Obukhova L.F. Neokonchennye spory: P.Ya. Gal'perin i Zh. Piazhe. [Unfinished arguments: P.Y. Galperin and G. Piaget]. *Psikhologicheskaya nauka i obrazovanie* [Psychological science and education], 1996, no. 1, pp. 31–41.
17. Kholmogorova A.B. et al. Obschenie v internete i sotsial'naya trevozhnost' u podrostkov iz raznykh sotsial'nykh grupp [Internet communication and social anxiety among different social groups of adolescents]. *Konsul'tativnaya psikhologiya i psikhoterapiya* [Counseling psychology and psychotherapy], 2015, no. 4, pp. 102–129.
18. Pavlova T.S., Kholmogorova A.B. Psikhologicheskie faktory sotsial'noi trevozhnosti v studencheskom vozraste [Psychological factors of social anxiety in students]. *Konsul'tativnaya psikhologiya i psikhoterapiya* [Counseling psychology and psychotherapy], 2011, no. 1, pp. 29–43.
19. Pavlova T.S., Kholmogorova A.B. Semeinye faktory sotsial'noi trevozhnosti u detei doskol'nogo vozrasta [Family factors of social anxiety in children of preschool age]. *Defektologiya* [Defectology], 2010, no. 6, pp. 30–38.
20. Prikhozhan A.M., Tolstykh N.N. Psikhologiya podrostkovogo vozrasta [Psychology of adolescence]. Moscow: YuRAIT, 2016. 406 p.
21. Pugovkina O.D., Kholmogorova A.B. Osnovnye etapy i napravleniya izucheniya kognitivnykh disfunktsii pri depressiyakh [Elektronnyi resurs] [The stages and directions of the cognitive dysfunction study in depression]. *Meditsinskaya psikhologiya v Rossii: elektronnyi nauchnyi zhurnal* [Medical psychology in Russia], 2015, no. 6(35). URL: http://mprj.ru/archiv_global/2015_6_35/nomer02.php (Accessed 09.06.2016).
22. Rubtsov V.V. Razvitie reflektivnykh protsessov mladshikh shkol'nikov v uchebnoi deyatel'nosti [The development of reflexive processes of younger schoolboys in educational activity]. Novosibirsk, 1995.
23. Rychkova O.V. Narusheniya sotsial'nogo intellekta pri shizofrenii diss. dokt. psikhol.n. [Violations of social intelligence in schizophrenia. Ph.D. Diss.]. Moscow, 2013. 478 p.
24. Rychkova O.V., Kholmogorova A.B. Kontseptsiya «sotsial'nogo mozga» kak osnovy sotsial'nogo poznaniya i ego narushenii pri psikhicheskoi patologii: chast' I: kontseptsiya «sotsial'nyi mozg» – produkt sovremennoi neironauki [Social Brain Concept as a Basis for Social Cognition and Its Deficits in Mental Disorders. Part I. 'Social Brain': Product of Modern Neuroscience]. *Kul'turno-istoricheskaya psikhologiya* [Cultural-historical psychology], 2012, no. 3, pp. 86–94.
25. Rychkova O.V., Kholmogorova A.B. Kontseptsiya «sotsial'nogo mozga» kak osnovy sotsial'nogo poznaniya i ego narushenii pri psikhicheskoi patologii: chast' II: kontseptsiya «sotsial'nyi mozg» – strukturnye komponenty i svyaz' s psikhopatologiei [Social Brain Concept as a Basis for Social Cognition and Its Deficits in Mental Disorders. Part II. 'Social Brain': Structural Components and Connections with Psychopathology]. *Kul'turno-istoricheskaya psikhologiya* [Cultural-historical psychology], 2012, no. 4, pp. 86–95.
26. Rychkova O.V., Kholmogorova A.B. Narusheniya sotsial'nogo poznaniya: novaya paradigma v issledovaniyakh tsentral'nogo psikhologicheskogo defitsita pri shizofrenii [Violations of social cognition: a new paradigm in the study of the central psychological deficits in schizophrenia]. Moscow: Forum, 2016. 288 p.
27. Rychkova O.V., Kholmogorova A.B. Sotsial'naya anedoniya i narusheniya sotsial'noi napravlenosti pri shizofrenii [Social anhedonia and violations of social orientation in schizophrenia]. Sbornik materialov nauchnoi konferentsii «Teoreticheskie i prikladnye problemy meditsinskoi (klinicheskoi) psikhologii» (2013 g., Moskva) [Proceedings of scientific conference "Theoretical and practical problems of clinic psy-

chology”]. Moscow: FGBU «Nauchnyi tsentr psikhicheskogo zdorov'ya» RAMN, MGPPU. — Moscow, 2013, pp. 92–93.

28. Sergienko E.A., Lebedeva E.I., Prusakova O.A. Model' psikhicheskogo v ontogeneze cheloveka [Theory of mind in human ontogenesis]. Moscow: Institut psikhologii RAN, 2009. 416 p.

29. Sigel D. Mainsait. Moscow, 2015. 323 p.

30. Slobodchikov V.I., Isaev E.I. Psikhologiya cheloveka [Human psychology]. Moscow: Shkola-Press, 1995. 384 p.

31. Smirnova E.O. Sovremennaya detskaya subkul'tura [Modern children's sub-culture]. *Konsul'tativnaya psikhologiya i psikhoterapiya* [Counseling psychology and psychotherapy], 2015, no. 4, pp. 25–35.

32. Lyusin D.V. (eds.) Sotsial'nyi intellekt: teoriya, izmerenie, issledovaniya [Social intelligence: theory, measurement, research]. Moscow: Institut psikhologii RAN, 2004. 176 p.

33. Tolstykh N.N. Sovremennoe vzroslenie [Modern maturation] *Konsul'tativnaya psikhologiya i psikhoterapiya* [Counseling psychology and psychotherapy], 2015, no. 4, pp. 7–24.

34. Kholmogorova A.B. Kognitivno-bikhevioral'naya terapiya «na grebne tret'ei volny»: revolyutsionnyi povорот ili novye aktsenty? [Cognitive-behavioral therapy «on the crest of the third wave»: a revolutionary new turn or new accents?]. *Sovremennaya psikhoterapiya psikhicheskikh rasstroistv* [Modern psychotherapies of psychic disorders], 2016, no. 2, pp. 16–21.

35. Kholmogorova A.B. Narusheniya reflektivnoi regulyatsii poznavatel'noi deyatel'nosti pri shizofrenii. Avtoref. dis. kand. psikh. nauk. [Violations of reflexive regulation of cognitive activity in schizophrenia. Ph.D. (Psychology) Thesis]. Moscow, 1983.

36. Kholmogorova A.B. Obostrenie bor'by paradigm v naukakh o psikhicheskom zdorov'e: v poiskakh vykhoda [Clash of paradigms in mental health sciences: in search of a way out]. *Sotsial'naya i klinicheskaya psikhiatriya* [Social and clinic psychiatry], 2014, no. 4, pp. 53–61.

37. Kholmogorova A.B. Rol' idei L.S. Vygotskogo dlya stanovleniya paradigmy sotsial'nogo poznaniya v psikhologii: obzor zarubezhnykh issledovaniy i obsuzhdenie perspektiv [The Role of L.S. Vygotsky's Ideas in the Development of Social Cognition Paradigm in Modern Psychology: A Review of Foreign Research and Discussion on Perspectives]. *Kul'turno-istoricheskaya psikhologiya* [Cultural-historical psychology], 2015, no. 3, pp. 25–43.

38. Kholmogorova A.B., Volikova S.V., Pugovkina O.D. Sotsial'noe poznanie i ego narusheniya v protsesse ontogeneza: chast' 1: istoriya i sovremennoe sostoyanie problem [Social cognition and its disturbances in ontogenesis: The history and modern state]. *Voprosy psikhologii* [Questions of psychology], 2015, no. 5, pp. 1–11.

39. Kholmogorova A.B., Volikova S.V., Pugovkina O.D. Sotsial'noe poznanie i ego narusheniya v protsesse ontogeneza: chast' 2: modeli i metody issledovaniya [Social cognition and its disturbances in ontogenesis: Research models and methods]. *Voprosy psikhologii* [Questions of psychology], 2015, no. 6. (in press).

40. Kholmogorova A. B. Integrativnaya psikhoterapiya rasstroistv affektivnogo spectra [Integrative Psychotherapy for affective spectrum disorders]. Moscow: Medpraktika-M, 2011. 480 p.

41. El'konin D.B. Razvitie rechi v doshkol'nom vozraste [Elektronnyi resurs]: kratkii ocherk [The development of speaking in preschool age: a brief sketch]. Moscow: Publ. Akademii pedagogicheskikh nauk RSFSR, 1958. 116 p. URL: <http://psychlib.ru/inc/absid.php?absid=94361> (Accessed 01.09.2016)

42. Baer R.A. Using selfreport assessment methods to explore facets of mindfulness. *Assessment*, 2006. Vol.13, pp. 27–45.

43. Blakemore S. J. The social brain in adolescence. *Nature Reviews Neuroscience*, 2008. Vol.9, pp. 267–277. doi: 10.1038/nrn2353

44. Bosco F. M., Gabbatore I., Tirassa M. A broad assessment of theory of mind in adolescence: the complexity of mind-reading. *Consciousness and Cognition*, 2014. Vol. 24, pp. 84–97.

45. Brink K. A., Lane J. D., Wellman H. M. Developmental pathways for social understanding: linking social cognition to social contexts. *Frontiers in Psychology*, 2015. Vol.6, pp. 1–11.

46. Brizio A. «No more a child, not yet an adult»: studying social cognition in adolescence. *Frontiers in Psychology*, 2016. Vol. 6, pp. 1–12.

47. Brothers L. The social brain: a project for integrating primate behaviour and neurophysiology in a new domain. *Concepts Neuroscience*, 1990. Vol. 1, pp. 227–251.

48. Carpendale J. Lewis C. How children develop social understanding. Oxford: Blackwell, 2006. 323 p.

49. Casey B. J., Caudle K. The teenage brain self control. *Current Directions in Psychological Science*, 2013. Vol. 22, pp. 82–87.

50. Choudhury S., Blakemore S.-J., Charman T. Social cognitive development during adolescence. *Oxford University Press*, 2006. Vol. 1, pp. 165–174.

51. Costello E. J. Development and natural history of mood disorders. *Biol.Psychiatry*, 2002. Vol. 52, pp. 529–542.

52. Crafa D., Nagel S.R. Traces of culture: the feedback loop between brain, behavior, and disorder. *Transcultural Psychiatry*, 2015. 46 p. (in press).

53. Crawford M. The cooperative solving of problems by young chimpanzees. *Comparative psychology monographs*, 1937. Vol. 14, pp. 1–88.

54. Cuthbert B.N. The RDoC framework: facilitating transition from ICD/DSM to dimensional approaches that integrate neuroscience and psychopathology. *World Psychiatry*, 2014. Vol. 13, pp. 28–35.

55. Dahl R. E. Adolescent brain development: a period of vulnerabilities and opportunities. Keynote address. *Annals of The New York Academy of Sciences*, 2004. Vol. 1021, pp. 1–22. doi: 10.1196/annals.1308.001

56. Daniels H., Cole M., Wertsch J.V. The Cambridge Companion to Vygotsky. New York, NY: Cambridge University Press, 2007. 434 p.

57. Davey C.G., Yucel M., Allen N.B. The emergence of depression in adolescence: Development of the prefrontal cortex and the representation of reward. *Neuroscience & Biobehavioral Reviews*, 2008. Vol. 32 (1), pp. 1–19.

58. Dumontheil I., Apperly I. A., Blakemore S.-J. Online usage of theory of mind continues to develop in late adolescence. *Developmental Science*, 2010. Vol. 13, pp. 331–338.

59. Dunbar R. How many friends does one person need?: Dunbar's number and other evolutionary quirks. London: Faber & Faber, 2010. 302 p.

60. Fernyhough C., Meins E. Private speech and theory of mind: Evidence for developing interfunctional relations. In Winsler A. (eds.) *Private speech. executive functioning and the development of verbal self-regulation*. Cambridge: Cambridge University Press, 2009, pp. 315–329.

61. Fett A.K.J. Trust and social reciprocity in adolescence—a matter of perspective-taking. *Journal of Adolescence*, 2014. Vol. 37, pp. 175–184 doi: 10.1016/j.adolescence.2013.11.011

62. Frances A. RDoC is necessary, but very oversold. *World Psychiatry*, 2014. Vol. 13, pp. 48–49.

63. Goddings A. The influence of puberty on subcortical brain development. *Neuroimage*, 2014. Vol. 88, pp. 242–251. doi: 10.1016/j.neuroimage.2013.09.073

64. Gottfried J.A. Neurobiology of sensation and reward. Boca Raton, FL: CRC Press, 2011. 466 p.

65. Gur R.C., Gur R.E. Social Cognition as an RDoC Domain. *Am J Med Genet B Neuropsychiatr Genet*, 2016. Vol. 171B, pp. 132–141.
66. Hayes S.C. Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior Therapy*, 2004. Vol. 35, pp. 639–665.
67. Kabat-Zinn J. Wherever you go, there you are: mindfulness meditation in everyday life. New York, NY: Hyperion, 1994. 304 p.
68. Kernberg O. Mentalization, mindfulness, insight, empathy, and interpretation. In: O.F. Kernberg (ed.) *The inseparable nature of love and aggression: clinical and theoretical perspectives*. Washington, DC London, England: American Psychiatric Publishing, 2011, pp. 57–79.
69. Klapwijk E.T. Increased functional connectivity with puberty in the mentalising network involved in social emotion processing. *Hormones and Behavior*, 2013. Vol.64, pp. 314–322. doi: 10.1016/j.yhbeh.2013.03.012
70. McGinn L.K., Newman, M.G. Status update on social anxiety disorder. *International Journal of Cognitive Therapy*, 2013. Vol. 6 (2), pp. 88–113.
71. Mehrabian A., Ksionzky S. A theory of affiliation. Lexington, Mass., Lexington Books, 1974. 212 p.
72. Mellick W., Sharp, K. Neuroeconomics for the study of social cognition in adolescent depression. *Clinical Psychology Science and Practice*, 2015. Vol. 9, pp. 255–276.
73. Pierce T. Shyness and technology: face-to-face communication versus technological communication among teens. *Computers in Human Behavior*, 2009. Vol. 24, iss. 6, pp. 1367–1372.
74. Premack D., Woodruff, G. Does the chimpanzee have a theory of mind? *Behavioural and Brain Sciences*, 1978. Vol. 1, pp. 515–526.
75. Sankararaman S. The genomic landscape of Neanderthal ancestry in present-day humans. *Nature*, 2014. Vol. 20, pp. 354–357.
76. Sebastian C.L. et al. Neural processing associated with cognitive and affective Theory of Mind in adolescents and adults. *Social Cognitive and Affective Neuroscience*, 2011. Vol. 7, pp. 53–63.
77. Sebastian C. Social cognition in adolescence: Social rejection and theory of mind. *Psicología Educativa*, 2015. Vol. 21, pp. 125–131.
78. Spear L.P. Heightened stress responsivity and emotional reactivity during pubertal maturation: implications for psychopathology. *Development and Psychopathology*, 2009. Vol. 21, pp. 87–97. doi: 10.1017/S0954579409000066
79. Teasdale J.D. Metacognitive awareness and prevention of relapse in depression: empirical evidence. *Journal of Consulting and Clinical Psychology*, 2002. Vol. 70, iss. 2, pp. 275–287.
80. Tomasello M. A natural history of human thinking. Cambridge: Harvard University Press, 2014. 192 p.
81. Tomasello M. The cultural origins of human cognition. Cambridge: Harvard University Press, 1999. 254 p.
82. Van Os J., Kapur S. Schizophrenia. *Lancet*, 2009. Vol. 374, pp. 635–645.
83. Venta A. Social cognition mediates the relation between attachment schemas and posttraumatic stress disorder [Elektronnyi resurs]. *Psychological Trauma: Theory, Research, Practice, and Policy*, 2016. June 23. URL: <http://psycnet.apa.org/?&fa=main.doiLanding&doi=10.1037/tra0000165> (Accessed 01.09.2016). doi: 10.1037/tra0000165
84. Vygotsky L.S. Mind in society: the psychology of higher mental functions. Cambridge, MA: Harvard University Press, 1978. 91 p.
85. Wakefield J.C. Wittgenstein's nightmare: why the RDoC grid needs a conceptual dimension. *World Psychiatry*, 2014. Vol. 13, pp. 38–39.
86. Wells A. Metacognitive therapy. In Herbert J.D. (eds.) *Acceptance and mindfulness in cognitive behavior therapy*. Hoboken, NJ: John Wiley & Sons, Inc., 2011, pp. 83–108.
87. Wells A. Metacognitive therapy: a practical guide. New York: Guilford Press, 2008. 316 p.
88. Wertsch J., Stone, C. The concept of internalization in Vygotsky's account of the genesis of the higher mental functions. In Wertsch J.V. (ed.) *Culture, communication and cognition: Vygotskian perspectives*. Cambridge: Cambridge University Press, 1985. 378 p.
89. Wertsch J.V. From social interaction to higher psychological processes: a clarification and application of Vygotsky's theory. *Human Development*, 2008. Vol. 51, pp. 66–79.
90. Wrzus C. Social network changes and life events across the life span: a meta-analysis. *Psychological Bulletin*, 2013. Vol. 139, pp. 53–80. doi: 10.1037/a0028601