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ПСИХОЛОГИЯ ОБРАЗОВАНИЯ

Diversity of Conditions and Forms of Learning Interaction as a Factor of Academic Performance

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In light of the increasing diversity within schools and classrooms, the issue of risks and opportunities for the success of every child is becoming increasingly significant. This article offers an overview of the current research on the relationship between the diversity of school and classroom compositions and the academic achievement of students. It also explores approaches to organizing cooperative learning and peer tutoring in heterogeneous classes. The possibilities and limitations of existing research in educational policy and pedagogical practice are examined. The potential of cultural-historical psychology, particularly the socio-genetic psychology of educational interactions, is substantiated for further research.

Keywords: cultural-historical psychology, diversity, heterogeneous schools (classes), learning interaction, cooperation, academic achievements, zone of proximal development.

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Вариативность условий и форм учебного взаимодействия как фактор академической успешности

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В статье представлен обзор актуального состояния исследований связи вариативности составов школ (классов) по социальным, академическим, этническим характеристикам, особым образовательным потребностям учащихся с образовательными результатами, а также подходов к организации развивающего учебного взаимодействия сверстников в гетерогенных классах. Раскрываются возможности и ограничения существующих исследований для образовательной политики и педагогической практики. Обосновывается потенциал культурно-исторической психологии в целом и социально-генетической психологии учебных взаимодействий — в частности, для дальнейших исследований вопроса.

Ключевые слова: культурно-историческая психология, разнообразие, гетерогенность состава школ (классов), учебное взаимодействие, совместное обучение, академические достижения, зона ближайшего развития.

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Introduction

Russian schools are becoming increasingly diverse in terms of student composition. Differences concern native language, ethnicity, academic achievements, physical abilities, and the socio-economic status of families. In this regard, the questions of how these changes affect the opportunities for developing abilities and obtaining a quality education for students from different groups, and how to manage and teach in the general education for the success of each child are relevant.

The relationship between the diversity of school and class compositions and students' educational achievements is actively studied in education science [12; 14; 26; 38; 39; 40]. The number of studies on the effects of organizing learning interactions in heterogeneous peer communities aimed at strengthening relationships and improving academic results is growing [13; 27; 29; 46].

In Russian science we find limited interest in these topics so far [2; 3; 5], despite the fact that it is precisely in the tradition of cultural-historical psychology that the initial focus is on differences in the development of intelligence and speech of children, conditioned by the social circumstances of their lives [1; 6], the idea of the child's zone of proximal development (ZPD) as the distance between the level of his actual development, determined with the help of tasks solved independently, and "the level of the child's possible development, determined with the help of tasks solved by the child under the guidance of adults and in cooperation with his smarter comrades ..." [1, p. 42], fundamental ideas about the mechanisms of developing learning interactions [7]. Meanwhile, the variable composition of schools (classes) by abilities, social and cultural experience, on the one hand, and the differences in the forms of learning interaction and guidance from the teacher, form a unique combination of ZPD, which will require adequate methods of diagnosis and design of developing learning communities.

In this article, we provide an overview of the current state of research on the relationship between the diversity of school (class) compositions and students' educational outcomes, approaches to organizing cooperation and learning interaction with peers representing different groups.

Academic staff of the school (class)

Schools and classes may differ in the academic characteristics of the composition (ability or achievement) of students. Most studies of the effect of achievement variance (standard deviation of achievement in a class) on individual student achievement find predominantly positive effects [5; 18; 42], but there are studies that have found a negative effect [23] or no effect at all [30; 40].

Studies of the influence of class or school achievement levels on individual achievement evidence that students achieve better in communities with high average academic achievement [30]. This effect is most pronounced for high-achieving students [5]. Results for low-achieving students receive mixed results [42].

Research on ability grouping shows little or no overall effect on student achievement [34; 45], with advantages for high-achieving students in homogeneous ability classes [34] and for low-achieving students in heterogeneous classes [5].

To explain the influence of homogeneity/heterogeneity of composition on academic performance, theories of social learning (A. Bandura) and comparison (L. Festinger) are proposed. It should be noted that studies of this type do not actually take into account differences in the organization of learning interaction in classes.

In turn, studies of the features of interaction and joint learning of peers with different levels of abilities, including allowing students with low levels of abilities to develop, are still few in number. It is characteristic that in the most recent review of the history of research on collaborative and cooperative learning, this aspect was not thoroughly considered [50]. At the same time, it is possible to highlight a study demonstrating that in mixed small groups, students with high abilities formed teacher-student relationships that were effective in supporting students with low levels of abilities [49]. In another study, class heterogeneity was specifically considered as an opportunity for academic progress and cognitive development for all students due to the restructuring of the learning situation: students with low levels of results, when completing a task that they could not complete independently, received advantages due to interaction with a partner with a high level [15].

Socio-economic composition of the school (class)

The impact of the socioeconomic composition of a school (class) on student performance is a well-studied issue. Students in a school with a more advantaged so-

cioeconomic composition (SEC) on average demonstrate higher educational outcomes than students in a school with students from a less advantaged group [41]. The effect persists after accounting for individual SEC and is more significant for student performance than it is alone [2].

The identified connections serve as the basis for promoting a policy of equity and desegregation through regulation of the composition of schools and classes (abandonment of tracking and selection, introduction of vouchers and lotteries for low-income groups, opening access to private schools, etc.). On the other hand, there is a search for pedagogical approaches that take into account differences in class composition, for example, differentiated learning [38]. Successful examples of solving the problem of inequality of opportunity that arises in socially segregated school communities through the organization of social interaction are the experiments of R. Perret-Clermont [8].

Schools (classes) with immigrant students

Research on co-education of students from immigrant and native families has focused on assessing the effects on academic outcomes of both groups. Findings are mixed across national samples, with some finding no convincing evidence of a negative or positive effect associated with the proportion of immigrant students in classes. [31]. Others have found evidence of small [16] or significant negative effects on local residents [35; 36]; on immigrant [44], negative effects on both groups [36], positive effects [33].

With regard to ethnic diversity in classrooms, the available evidence is also mixed: it hinders the academic performance of immigrant children but has no significant effect on the academic performance of indigenous students [22]; it has a positive effect on the academic performance of students [26], including minorities [17; 39]; and it has both a negative and positive effect depending on the academic composition and generation of minorities [30].

The prevailing view in the current debate is that the negative relationship between the representation of immigrant students in schools and the achievement of their classmates is mainly due to the fact that migrants are grouped in the same schools as disadvantaged students from the local population, and that socio-economic characteristics are the primary factor [12].

Moving from composition effects to interaction effects, we find studies showing that intergroup contacts contribute to improved relationships, intercultural understanding, and increased educational outcomes for children from migrant and local families [25; 29].

Research into the practices of organizing learning interactions in culturally diverse classrooms reveals the mediating role of peers and teachers in the acquisition of cultural tools by minority students [21], and the effects of constructing dialogue forms of peer interaction based on mutual assistance in language acquisition that do not place minority children in a subordinate position [25].

Inclusive school communities

Some studies demonstrate predominantly positive effects on cognitive and psychoemotional development, academic results, socialization, educational trajectory and employment in children with SEN who studied in general education classes compared to those who studied in special education classes [19; 23; 32]. The results of meta-analyses show both the presence and absence of pronounced effects [20; 37]. Differences in the effects are associated with the parameters of inclusive education [24], the socio-economic composition of classes in which students with SEN are included [43].

Today, it can be considered a generally accepted idea that the inclusion of students with special needs requires more than simply placing children with special needs in regular classes together with their peers without special needs, but, above all, organizing social interaction between children.

To study the relationships of children with and without special educational needs in inclusive classes, the concept of “social participation” is most often used, and the study of interaction is conducted using the categories of “cooperative learning” or “cooperative oriented learning”, “peer tutoring”, “peer-mediated interventions” .

The focus is on the effects of students’ acceptance or non-acceptance of each other [10; 11; 28]; development of social skills and improvement of social interaction in children with special educational needs [13; 47]. Peer teaching (including when a student with special educational needs acts as a mentor) has a positive effect on the social development and academic results of students with special educational needs, but not in all cases [46]. Less attention is paid to studying the features of organizing joint work in inclusive groups (positions of participants, functions of interaction, etc.), the role of the teacher in its coordination, and the corresponding effects. It was shown that in most cases, students’ interaction in groups was carried out in a free form, in which tasks or functions of interaction are not distributed between students by the researcher [4].

In turn, an experimental study of the development of higher mental functions of children with special educational needs in the context of specially organized educational interactions with adults and peers without special educational needs, conducted by A.V. Konokotin, demonstrated a variety of developmental effects: changes in the methods of interaction, relationships, and thinking [3].

Conclusion

We conducted an analysis of the current field of research on the correlation between the diversity of school (class) compositions and educational achievements, approaches to organizing social and learning interactions between peers from different groups.

In the first case, we found a significant body of research, the results of which are ambiguous, but in general allow us to identify the risks and benefits for student performance with a particular configuration of school (class) composition and propose solutions on this basis, primarily for educational policy.

The issues of pedagogical aspects of organizing interaction in various learning communities remain insufficiently studied. Methodologically limited experimental solutions are used, focused more on strengthening relationships in the community than on developing students' abilities and achieving academic progress.

It is critically important for Russian education today to stimulate research to substantiate management and teaching methods that respond to the diversity of the school community and the characteristics of individual groups of students to achieve success for everyone [9].

In this regard, cultural-historical psychology has significant potential and methodological advantages, and, above all, social-genetic psychology of learning interactions, offering theoretical positions and experimental practice for changing the methods of learning cooperation between children and adults using signs means that expand the ZPD and transform the processes of thinking, understanding, and communication [3; 7].

Research in this area will be useful for developing an original Russian educational model that responds to the challenges of diversity and inequality in relation to foreign approaches to multicultural and inclusive education.

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Diagnostics of Development in the System of Assessment of Educational Results of Primary School Children: from Cultural-Historical Psychology to Psychological Anthropology

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The article distinguishes between pedagogical and psychological diagnostics of educational outcomes. Pedagogical diagnostics is focused on assessing the achievements of students of the planned results of mastering the educational program and has a long tradition in education. It is noted that psychological diagnostics in education is a diagnosis of the development of students in the educational process. In Russian education, the psychological diagnosis of the developmental effect of the educational program of primary general education has not been developed. L.S. Vygotsky's analysis of the main groups of theories of the relationship between learning and development and the resulting qualification of the type of diagnosis in each of the approaches to solving the problem is presented. L.S. Vygotsky's views on learning and development are investigated, and the position justified by the scientist on the initial inclusion of developmental diagnostics in school education is emphasized. The views of D.B. Elkonin on the goals and content of psychological diagnostics in developing primary education are presented. The analysis of the practice of diagnosing the general course of development of primary school children in the system of developmental education by L.V. Zankov is carried out. An anthropological approach to the diagnosis of development in education is presented. The age-normative development model of primary school children is described as the basis for the development of a system of psychological diagnostics of educational outcomes of primary general education.

Keywords: psychological diagnostics, educational outcomes of primary school children, developmental education, psychological anthropology, age-normative development model, diagnostics of development.

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Диагностика развития в системе оценки образовательных результатов младших школьников: от культурно-исторической психологии к психологической антропологии

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В статье проводится различение педагогической и психологической диагностики образовательных результатов. Педагогическая диагностика ориентирована на оценку достижений обучающимися планируемых результатов освоения образовательной программы и имеет давнюю традицию в образовании. Отмечено, что психологическая диагностика в образовании — это диагностика развития обучающихся в образовательном процессе. В отечественном образовании психологическая диагностика развивающего эффекта образовательной программы начального общего образования не разработана. Излагается анализ Л.С. Выготским основных групп теорий связи обучения и развития и вытекающая из анализа квалификация вида диагностики в каждом из подходов к решению проблемы. Исследуются взгляды Л.С. Выготского на обучение и развитие, подчеркивается обосновываемое ученым положение об изначальной включенности диагностики развития в школьное обучение. Излагаются взгляды Д.Б. Эльконина на цели и содержание психологической диагностики в развивающем начальном обучении. Проведен анализ практики диагностики общего хода развития младших школьников в системе развивающего обучения Л.В. Занкова. Представлен антропологический подход к диагностике развития в образовании. Описана возрастно-нормативная модель развития младших школьников как основа разработки системы психологической диагностики образовательных результатов начального общего образования.

Ключевые слова: психологическая диагностика, образовательные результаты младших школьников, развивающее образование, психологическая антропология, возрастно-нормативная модель развития, диагностика развития.

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Introduction

The issue of assessing the educational results of primary school students is given special attention in the state, regulatory and legal documents, in psychological and pedagogical research. The FSES of primary general education notes that the results of mastering the program of primary general education are subject to evaluation taking into account the specifics and features of the subject of evaluation [20]. The Federal Educational Program of Primary General Education describes the monitoring (external and internal) of students' achievements [21].

Analysis of the practice of assessing students' achievements of the planned results of mastering the programs of primary general education shows that there is a system of pedagogical assessment (diagnostics) of subject results: the federal working programs of academic disciplines provide thematic tests, primary school graduates perform All-Russian tests in the main academic subjects; the amount of teaching time allocated for control activities on academic topics is rationed. The development of

tools for assessing meta-subject educational outcomes and functional literacy of primary school students is underway [5, 8, 15,19]. Pedagogical diagnostics is focused on the assessment of specific subject, meta-subject, and personal educational results. Educational and subject tasks are defined as a diagnostic tool.

Psychological diagnostics in education as a science and practice of making a psychological diagnosis with the help of specially designed tools is developmental diagnostics. The learner is at the center of such diagnostics in education — the new formations of age development and the dynamics of their formation are subject to evaluation. The subject of psychological diagnostics of educational results is psychological processes that ensure the achievement of planned personal, meta-subject and subject educational results. Tools of psychological diagnostics for assessment of personal and subject educational results need to be substantiated. These should be tools with evidentiary effectiveness of assessment of the developmental effect of the educational program of primary general education.

The need for psychological diagnostics of development in education first appears in the ideology of developmental education. In developmental education not only educational results as the results of learning subject material — knowledge, skills, competences, functional literacy — but also the results of development of psychological properties and qualities of a student are subject to evaluation. Properties and qualities that are prerequisites for mastering subject knowledge, skills and abilities and at the same time the results of their mastering. Unlike pedagogical diagnostics of educational results, psychological diagnostics of personal and metaeducational results as developmental diagnostics in education has no serious tradition.

Diagnostics of students' development has an important practical significance. L.S. Vygotsky pointed out the main function of psychological diagnostics in education: control over the course and results of normal development of a child in the process of education and upbringing, identification of developmental disorders, solving a variety of practical tasks of education and upbringing. Such tasks include the prevention of risks of school failure, identification of the causes of learning difficulties and the development of an individual program of overcoming them by a pedagogical psychologist together with the teacher, the definition of the zone of the proximal development of the student and the forecast of his further development, the development of programs of psychological and pedagogical support in the transition of students to the main stage of general education. The solution of various practical tasks of education, upbringing and development by means of psychological diagnostics presupposes theoretical and methodological justification of diagnostics of students' development in the educational process: the content (lines, new formations) of development, age norms of development, means and tools for assessing the process and results of development.

Psychological diagnostics in developmental education

The question of assessing the developmental effect of educational programs was first raised in the theory and practice of developmental education. The theoretical solution to the problem was proposed by L.S. Vygotsky in his article 'The Problem of Learning and Mental Development at School Age' written by him in 1933/34 academic year [3]. L.S. Vygotsky critically analyzed the available approaches to the problem of learning and development and proposed his solution. His analysis has not lost its relevance for understanding the purpose and content of psychological diagnostics in education.

L.S. Vygotsky identified three inadequate approaches (groups of theories) to the problem of learning and development. According to the first approach, learning and development are independent processes. This approach is most consistently presented in the works of J. Piaget. L.S. Vygotsky notes that Piaget separates the learning process from the developmental process and believes that the developmental process goes beyond the learning processes.

The second approach identifies learning and development: learning is development. This approach is most consistently represented in behaviorism and it, in fact, removes the problem of learning and development. Development is reduced mainly to the accumulation of more and more complex forms of behavior. According to L.S. Vygotsky, in this approach, development and learning coincide with each other like two equal geometric figures.

Within the framework of this approach, a special procedure for testing educational results was developed — criterion-oriented or subject-oriented testing. Subject-oriented testing is aimed at assessing the quality or level of mastery of certain subject content by a learner. The main tool of criterion-referenced testing is achievement tests. A. Anastasi, an authoritative researcher in the field of psychological testing, points out that standardised achievement tests have the advantages of objectivity, uniformity and efficiency, reveal the shortcomings of past learning, set the direction of subsequent learning and motivate the student [1]. At the same time, it remains unknown what psychological formations are behind learning outcomes: whether these outcomes are obtained through thinking or mnemic actions, independently or with the help of an adult. The effects of students' development are not assessed by criterion-referenced testing.

The third approach to the problem of learning and development is fully represented in the works of K. Koffka, a prominent representative of Gestalt psychology. According to the scientist, development is based on two different in nature but interrelated processes development is based on two different in nature, but interrelated processes: development-maturation and development-learning. The process of maturation prepares and makes possible the process of learning, and learning stimulates and advances the process of maturation. L.S. Vygotsky notes that this approach combines the features of the first two approaches and, at the same time, positively evaluates the views of K. Koffka on the learning as development [3].

The starting point of Vygotsky's own solution of the question is the fact that a child's education begins long before schooling and that a child makes a certain path of development before school. The level of development with which a child enters school, according to L.S. Vygotsky, characterizes the real state of the child's mental development or actual level of development. According to L.S. Vygotsky, determining the actual level of development is an undoubted fact, knowledge of which is important for school education. However, determining only the actual level of development does not give a complete picture of the child's capabilities in the learning process. In order to identify the possibilities of child's development to the prospects of his learning it is necessary to know the zone of his proximal development. The zone of proximal development allows a more complete assessment of the state and possibilities of child development.

The concept of 'zone of proximal development' introduced by L.S. Vygotsky explains the mechanism of connection between learning and development. In the process of learning as a co-operation between an adult and a child, the zone of the child's proximal development is revealed and formed [12, 14].

For L.S. Vygotsky, the solution to the issue of learning and development is inextricably linked to the tasks of diagnostics. For each level of education, an age-normal diagnostics should be created, revealing the actual level of development and the zone of the proximal development of students. 'Determination of the actual level of development and the zone of the proximal development, — writes L.S. Vygotsky, — is together what is usually called normative age diagnostics' [2, p. 268]. [2, c. 268]. The basis of age diagnostics should be age norms or standards of a given state of development. The task of creating normative age diagnostics and determining the norms of child development at a certain stage of education remains an urgent task of psychological and pedagogical science.

L.S. Vygotsky discusses the question of the composition of age diagnosis or developmental lines. He distinguished central and lateral lines of development. According to L.S. Vygotsky, the central line of development in primary school is mental development in the process of learning scientific concepts. L.S. Vygotsky notes the important practical significance of developmental diagnostics in the learning process. The most important function of developmental diagnostics is to protect the developmental process of a child at a certain age, to identify developmental disorders and their causes.

The development of the issues of diagnostics and development in the learning process was continued by D.B. Elkonin. He emphasized the inseparable connection between diagnostics in age psychology and diagnostics in pedagogical psychology. Psychological and pedagogical diagnostics should be primarily age-specific: there cannot be diagnostic systems identical for different age periods. 'For each age period,' writes D.B. Elkonin, "there should be a special system of diagnosed aspects of mental development in terms of content" [22, p. 302]. [22, c. 302].

D.B. Elkonin defines the age-specific, leading type of activity and basic new-formations as a system of diagnosable aspects of mental development. In this case, the point of reference for determining the development at any given moment is the level achieved by the child by the end of the period in optimal conditions of education and upbringing. D.B. Elkonin pointed out that the centre of diagnostics should be an individual child, the process and results of his/her development: 'Diagnostics in the proper sense of the word should be understood as such diagnostics, the centre of which is first of all an individual child — his/her level of development, difficulties, prognosis and corrective-pedagogical measures' [ibid., p.304]. [ibid., p.304].

D.B. Elkonin's ideas about developmental diagnostics in education were implemented in the development of a new practice of primary education, which later received the name of the D.B. Elkonin-V.V. Davydov system of developmental education. Diagnostics of the results of developmental education was carried out along the lines of assessing the formation of theoretical thinking as the main new formation of junior schoolchildren's development. Diagnostic methods were developed mainly to assess the development of individual components of theoretical thinking: content analysis, content planning, and content reflection [4, 6].

In L.V. Zankov's didactic system of developmental learning, the study of pupils' developmental progress is a necessary part of experimental learning. L.V. Zankov identifies three lines of development in the learning process: observation activity, thinking activity, and practical actions. Assessing L.V. Zankov's approach to the allocation of lines of the general course of development, we note the dominance of the intellectual component in

them. We also note the importance of the assessment of personal formations of junior schoolchildren in the system of developmental education: diagnostics of the need for cognition as a basis for the successful mastering of educational programs of basic and secondary general education.

The development of the theory of developmental learning went in synthesis with the theory of activity and at a certain stage, in our opinion, the justified departure from 'psychologizing' of learning, attention to 'lower' mental functions (perception, attention, memory) to learning (education) as mastering by an individual of cultural-historical forms (ways, samples) of activity brought psychological diagnostics beyond the boundaries of a particular individual into the space of culture and activity. In turn, the development of didactics in the 20th century made a step from the projection of the content of education as a set of knowledge representing the reduction of the basics of sciences, to the content as a set of cultural and historical experience (samples and standards of activity, thinking, attitudes, etc.), which should be mastered by an individual. Moreover, in relation to the content of education, the question of not only the reproduction of experience, but also the design of such forms of activity, which are not dominant in culture or are absent at all, but will become predominant in the future in the conditions of changes in the mode of production and social life, has become more and more relevant over time. In this situation, pedagogical criterion-oriented testing has reached a new level, offering various models and tools for diagnosing competences (competencies) as an individual's ability to demonstrate virtually the same universal ways of activity.

As a result, both variants of diagnostics ('psychological' in the tradition of developmental learning and pedagogical) have significantly converged, if not identified. In both cases, it is a question of diagnosing a person's mastering of patterns (ways) of activity in the process of development through diagnosing the 'external' — a person's performance of certain types of activity (more or less complex). Accordingly, at the new stage, learning (now education) was identified with development. In this case, the problematics of age, in fact, disappears, and in the tools of pedagogical diagnostics the age norm is fixed on an empirical basis. Psychological diagnostics as diagnostics of 'lower mental functions' continued to exist and develop, especially due to the methods of neuropsychology. In this diagnostics, the question of age, age dynamics of development in the traditional sense as maturation, remains relevant.

What place does a person occupy in these variants of diagnostics? In the first variant of diagnostics, where a person is just a carrier of ways of activity, the 'white spot' remains what provides the possibility of their mastering on the human side (in addition to the content of education and the efforts of teachers), to what extent a person himself is able to regulate the process of education. In the second variant of diagnostics, a person is his/her psyche, where a person's self-regulation abilities are even less obvious.

In our point of view, it is the 'return' of the individual that allows us to return to the question of the relationship between learning and development and enables us to discuss learning leading to development, the age-normative model of development, and appropriate developmental diagnostics.

Anthropological approach to developmental diagnosis

As a theoretical and methodological basis of developmental diagnostics in education, we have defined the anthropological approach in psychology, substantiated and fully described in psychological anthropology [9, 13, 16—18]. Let us highlight its principal provisions that are directly related to the issue of psychological diagnostics of development in education.

The subject area of psychological anthropology is subjective reality (subjectivity), its development in ontogenesis and formation in educational processes. The definition of subjectivity as a subject of psychology is justified by the need to identify a special subject of human psychology. In accordance with this understanding of the subject of psychology, the central psychological projection of a person is his being as a subject.

The understanding of the subject in psychology is associated with the endowment of a human individual with the qualities of being active, independent, capable, and skillful in the implementation of specifically human forms of life activity. At the same time, the concept of the subject in psychology is considered in a broader context — as the creator of his own life, as the manager of mental and bodily abilities. The central (nuclear) formation of human subjectivity is subjectivity. Subjectivity is a variety of psychological abilities and mechanisms, generalized in such psychological realities as reason, feelings, motivations, will, abilities, character. The formation of the basic formations of human subjectivity is carried out in education. Achievement of the level of subjectivity by a person presupposes mastering a set of generic psychological abilities: thinking, consciousness, desires, will, feelings, etc.

Another projection of a person, which takes shape in education, is personality. The concept of personality in psychology denotes a special way of being a person — his existence as a member of society, as a representative of a certain social group. The most integral characteristic of

a person as a personality is his position. Personality is a person who freely, independently and responsibly determines his place in the group, in society, in culture. We can talk about a special personal being of a person. The personal way of being of a person is provided due to special personal formations: value orientations, personality orientation, self-esteem, independence, responsibility, prospects and goals of a person.

The authors have developed an age-normative model of development and presented its description in relation to each level of general education: preschool, primary, basic, secondary [10, 11, 13, 18]. The authors introduce the concept of 'developmental norm' to denote the potential capabilities of children of a certain age at a certain level of education'.

The concept of 'age-normative model of development' is a pedagogical interpretation of the psychological concept of developmental norms. The age-normative model of development includes three basic components: the main lines of development; developmental situations; developmental neo-formations. The main lines of development are the lines that represent the process of formation and development of subjective reality in ontogenesis. These lines are transversal for all periods of ontogenesis and have no final end. At a certain stage of ontogenesis, the main lines acquire a relatively complete character and function as new-formations of age.

In describing the lines and results of development as the composition and structure of the age-normative model of human development in education, the authors proceed from the understanding of the ultimate human ontology. Community, consciousness, and activity are singled out as categories for describing the ontological foundations of the human way of being in the world: 'Community (event community), activity, and consciousness constitute the ontological foundations of the human way of life. These bases mutually presuppose each other, but are not reducible one to the other, each of them has a specific content' [17, p. 121] [17, с. 121].

An individual's inclusion in one or another form of being sets the level, scale and type of his/her subjectivity: subjectivity in activity, subjectivity in community, subjectivity in consciousness. The formation of subjectivity in consciousness, subjectivity in community, subjectivity in activity form the main lines of human development as a subject of his/her own life, as a subject of development and self-development in education.

Along the line of subjectivity in activity there is the development of initiative and independence in joint activity, mastering of its separate components and integral structure — becoming the subject of his/her own activity. Along the line of subjectivity in the community, the child's means and ways of communicating with an adult, perception and understanding of the adult's position, communication with peers, and becoming a subject of communication with others in joint activities are developing. The process of development of reflexive consciousness as a basic human ability, as the main mechanism for transforming cultural and historical experience into individual psychological formations of personality, is carried out along the line of subjectivity in consciousness.

Developmental situations act as a 'supporting structure' in the age-normative model of development. A developmental situation is a space of joint activity and communication between an adult and a child, a source of development of the subjects of the educational process. At a certain age stage there are three typical developmental situations associated with the child's entry into a given age, with the maximum realization of the potential of the age, with the formation of new formations of the age as a prerequisite for the transition to a new period (type) of development.

The description of the age-normative model of development in the elementary school age is presented in Table 1.

Table 1

Age-normative model of development in the elementary school age

Main lines of development	Types of development situations			Neoplasms
	School	Student	Academic	
Subjectivity in activity	Subjectivity in the learning actions of monitoring and evaluation	Subjectivity in the learning actions of planning and modelling	Subjectivity in setting the learning task	Subject of cumulative learning activity. Ability to learn
Subjectivity in the community	Builds relationships with teachers and peers. Establishes and maintains business relationships, accepts other points of view	Perceives the teacher as a bearer of norms of learning activities.	Engages in a discussion with an adult on a learning topic. Peer as a partner in learning activities	The student's position in the learning community. Activity identity.
Subjectivity in consciousness	Situational self-assessment of learning actions	Differentiated self-assessment of learning actions	Adequate self-esteem	Reflexive consciousness (thinking)

School, student and learning development situations are distinguished at the younger school age. Their general characterisation is presented in Table 1.

The result of normal development in primary general education along the lines of subjectivity in activity is the formation of a junior schoolchild as a subject of cumulative learning activity. He or she is capable of setting, maintaining and realising a learning task, but in interaction with peers and under the guidance of a teacher. A student is a subject of learning activity if he/she participates in the search and construction of new ways of action in the situation of setting a learning task.

The result of normal development in primary general education along the lines of subjectivity in the community is the learner's position. In cooperative learning activities, the learner's position is formalised as an orientation towards the search for a common way of action, the principle of solving a new learning task. Joint learning activity generates a common aspiration, sets common tasks, makes it possible to identify different points of view and agree. Younger students are able to conduct a dialogue; accept the position of another, reasonably justify their point of view and assessment of events, reach mutual understanding, cooperate to achieve a common result.

The result of normal development in primary general education along the line of consciousness is reflexive consciousness (thinking). Reflexion is the basis for scientific-theoretical cognition of the world, for solving problems of creative and search character; it allows to carry out cognitive actions aimed at analysing and discovering essential characteristics of the studied subject, at planning an interrelated set of educational-cognitive actions to achieve the set goal. The determining factor for the development of reflexive thinking is both the theoretical content of teaching and the form of building a learning community. In a jointly distributed learning activity, the teacher creates situations that generate different opinions of students about the ways of solving a new problem, contribute to the identification of common and different in these opinions, and help each student realise his/her position in the learning community.

The results of students' development in primary general education are consistent with the meta-subject and personal educational results of this level of education. In accordance with L.S. Vygotsky's position on the unity, but not the identity, of learning and development, subjectivity in activity, subjectivity in community, subjectivity in consciousness (cognition) are the prerequisite and at the same time the result of the formation of a variety of universal learning actions (learning and cognitive, communicative, regulatory), value orientations and moral qualities of personality. Subjectivity in learning activity is the basis for such universal learning and cognitive actions as basic research and work with information. Subjectivity in community ensures the formation of numerous universal educational communicative actions of communication and interaction with a teacher and peers in junior schoolchildren. Subjectivity in consciousness (cognition) interfaces with basic logical actions as universal educational cognitive actions, and ensures the mastery of universal educational regulatory actions of self-organisation and self-control. The correlation of new developmental transformations and meta-subject and personal educational outcomes in primary general education is presented in Table 2.

Psychological diagnostics for the assessment of meta-subject competences should be conducted according to the results of development along the lines of subjectivity in activity, subjectivity in community, subjectivity in consciousness (cognition). Psychology has developed appropriate tools (techniques) for diagnosing learning activity, reflexive thinking, and communicative abilities of junior schoolchildren.

Subjectivity in activity, community, consciousness form the basis for the formation of personal properties and qualities of junior schoolchildren. In joint educational and cognitive activities, in extracurricular activities, in the system of additional education, cognitive in-

Table 2

Correlation of new developmental transformations and meta- and personal educational outcomes in primary general education

Developmental neoplasms	Metacognitive educational results	Personal educational results
Subject of cumulative learning activity. Ability to learn	Basic research universal learning actions. Working with information	Russian civic identity. Readiness for active participation in socially significant activities. Cognitive motivation for learning. Readiness for co-operation and mutual understanding to achieve a common result. Ability to exercise self-control and self-assessment. Readiness for self-education and self-development
The position of the learner in the learning community. Activity identity	Universal educational communicative actions of communication and interaction in joint activities. Basic logical universal learning cognitive actions. Regulative universal learning actions of self-organisation and self-control	
Reflexive consciousness (thinking)	Basic logical universal educational cognitive actions. Regulatory universal educational actions of self-organization and self-control	

terests, activity, initiative, curiosity and independence in cognition are formed; stable personal qualities: internal motivation of actions, activities, assessments; ability to regulate their activity in the process of achieving goals and solving problems; adequate self-assessment, the ability to see themselves, their actions in this or that situation and to give them an objective assessment; self-determination and self-development of learning.

The construction of normative age diagnostics in primary general education on the basis of the age-normative model of development implies the development of a set of diagnostic techniques that identify the child's readiness for school education and monitor development in the process of learning and at the stage of completion of school education. The system of developmental diagnostics, covering the whole period of primary education, will allow solving a variety of practical issues of education and upbringing of junior schoolchildren: preventing difficulties in learning and education, identifying their causes, determining the zone of proximal development and ensuring the safe transition of students to the next level of education.

Conclusion

L.S. Vygotsky laid scientific-theoretical foundations of psychological diagnostics in education, distinguished between diagnostics of the actual level and the zone of proximal development. Identification of the actual level and the zone of proximal development at a certain level of education leaves the basis of normative age diagnostics, the creation of which will make it possible to solve a variety of practical issues of training and education of schoolchildren.

The anthropological approach in psychology is defined as the theoretical and methodological basis of developmental diagnostics in education. The age-normative model of development developed in psychological anthropology is justified as the basis for age-normative diagnostics of development in junior school age. The model allows assessing the development process of junior schoolchildren within the boundaries of the level of education: when the child enters school, in the course of education, at the end of primary education. Psychological diagnostics of developmental outcomes at the primary education level acts as a reliable basis for assessing the achievement of planned meta-subject and personal educational outcomes by students.

The prospect of further research and development in the field of psychological diagnostics for the assessment of meta-subject and personal educational results of primary general education is the substantiation of a set of methods for diagnosing developmental neoplasms in the younger school age.

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Formation of Research Vision in Schoolchildren Using Digital Mediation Tools according to Cultural-Historical Psychology. Part 1

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The article sets a task to create and implement models of schoolchildren's development, which are based on the basic ideas of the cultural-historical approach proposed by L.S.Vygotsky's scientific school. The authors of the article believe that such models can help to overcome the limitations of explanatory models, this hypothesis is based on stimulus-reactive algorithmic strategies that negatively affect human development. Using the material of the project "Schoolchildren as Scientific Volunteers", the authors of the article show how this mediation model can be arranged uшmп digital tools and a system with elements of artificial intelligence. The project sets the task of forming a research vision (a new functional organ) in schoolchildren with the help of digital mediating tools. Using a cultural-historical approach to AI as a means of developing thinking and research skills while working with information, we propose to consider ethical AI frames as part of an educational environment that promotes the adaptation of risky technologies.. Critical analysis of risk-generating technologies has been developed in bioethics. As ethical guidelines, we use the principles of precaution and proactive response. This article is the first part, which describes the preparatory phase of the study. The second part will show how the project proceeded, what the first results were and what difficulties were met during the implementation of the tasks.

Keywords: cultural-historical psychology, mediation, functional organ, digital mediating tools, datasets, research vision, the project "Schoolchildren — Scientific Volunteers".

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Формирование исследовательского видения у школьников с использованием цифровых средств-посредников с точки зрения культурно-исторической психологии. Часть 1

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В статье ставится задача, связанная с необходимостью разработки и внедрения таких моделей развития школьников, в основание которых заложены базовые идеи культурно-исторического подхода, предложенные в школе Л.С. Выготского. Авторы статьи полагают, что именно с помощью таких моделей может быть преодолена ограниченность объяснительных моделей, в основание которых закладываются стимул-реактивные алгоритмические стратегии, негативно влияющие на развитие человека. На материале проекта «Школьники — научные волонтеры» авторы статьи показывают то, как может быть устроена модель опосредования, в которой используются цифровые средства и система с элементами искусственного интеллекта. В рамках проекта ставится задача по формированию у школьников исследовательского видения (нового функционального органа) с помощью цифровых средств-посредников. Опираясь на культурно-исторический подход к пониманию искусственного интеллекта в качестве орудия развития мышления и формирования исследовательских способностей и навыков в работе с информацией у школьников — научных волонтеров, мы обосновываем идею о том, что фреймы этического регулирования ИИ могут стать частью знаковой среды, в которой будет происходить культурная адаптация рискогенной технологии. Критический анализ рискогенных технологий разработан в биоэтике. В качестве этических ориентиров мы используем принципы предосторожности и опережающего реагирования. Данная статья является первой частью, в которой описана постановочная часть исследования. Во второй части будет показано, как протекал проект, какие были получены первые результаты и какие были трудности, связанные с выполнением поставленных задач.

Ключевые слова: культурно-историческая психология, опосредование, функциональный орган, цифровые средства-посредники, датасеты, исследовательское видение, проект «Школьники — научные волонтеры».

Финансирование. Исследование выполнено за счет финансовой поддержки (гранта) исследовательских центров, предоставленной автономной некоммерческой организацией «Аналитический центр при Правительстве Российской Федерации», идентификатор соглашения о предоставлении субсидии — 000000D730324P540002, договор о предоставлении гранта с Новосибирским государственным университетом — от 27.12.2023 № 70-2023-001318.

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Problem

Several contemporary authors have shown recently that in the context of digitalization and virtualization, numerous teachers, psychologists, and researchers studying the process of digital influence on children and adolescents have overwhelmingly relied on the explanatory models based on seemingly obsolete behaviorist ideas describing human actions in the categories of "stimulus-reaction", which have lost their research potency. In these models, students are viewed as reactive, passive individuals suffering from active, aggressive impact of "smart" gadgets. It can be inferred that children must be protected from these "aggressors" and prohibited from using them at school lessons, children's time on the Internet must be limited, etc. Digitalization has revived old behavioral patterns and models, rooting, as Yu.V. Gromyko put it, in the "digital-algorithmic approach", according to which the activity of a person (student and teacher) is first programmed, and then a digital platform is introduced to effectively manage their behavior, enabling the algorithmization of behavior [6].

Thus, a gadget is automatically assigned the role of an active subject. Several studies demonstrate how digital technologies (gadgets, the Internet) negatively and destructively affect children and adolescents, their stress resistance, their well-being, their sleep-wake routines; how the likelihood of suicide increases; how gadgets negatively impact cognitive abilities, significantly reduce verbal intelligence, and also worsen the dynamics of brain maturation in the areas responsible for speech, attention, emotions, etc. [3]. At the same time, however, the active role of a student and the role of an adult mediator are not discussed at all — as we are accustomed to describing the learning situation in terms of interaction between an adult and a schoolchild, through the prism of the "adult-child-psychological tool" mediation model, since development of this model in the pioneering works of L.S. Vygotsky, D.B. Elkonin and other authors of the cultural-historical approach [for more details see: 13; 14].

It is important to devise such learning models where a student is considered as a subject of development overcoming the stimulus-reactive behavior. Methodologically, we base such models on the cultural-historical approach (hereinafter referred to as CHA), developed by the Vygotsky school [6; 11; 12; 13; 14]. This approach has the necessary potential, through which it is possible to build new development models applicable to a mixed social-digital environment. CHA potential has been discussed by numerous Russian and foreign authors [6; 13; 14; 17; 22].

The mediation (a mediacy model developed within CIP framework) shows that with the introduction of digital means, the situation is aggravated precisely in the place that Vygotsky himself pointed out as the place associated with a child's mastery of his or her own behavior (affect) with the help of a psychological tool. L.S. Vygotsky insisted that a psychological tool differs from an external object-tool primarily in its orientation rather than the substrate. A psychological tool-sign is directed inwardly, at a person's mastery over one's passions and affects, one's genuine nature [2, p. 90]. Thus, through numerous acts of mediated mastery of an object and of oneself (starting with a spoon and ending with a number and a word), a person develops new functional activity organs, complex "psychological systems". In a broad sense, people do not have "organs" for reading, writing, counting, just as there are no organs for understanding, reflection, thinking. They are formed as special "functional organs". The latter are not concentrated in the brain. It is not the brain that is responsible for the act of thinking, but the psychological system, built through numerous acts of mastering.

What does it mean — mastering one's behavior? It means that a person (a child), with the help of an adult intermediary, develops a method of action using a tool and, therefore, forms his or her own subjectivity. When mastering a method of action, the latter "enters" a person, becoming his or her new functional organic feature; a new "functional organ" is formed in a person [9]. As B.D. Elkonin wrote, it is important to understand how a stimulus, previously external to a person, turns into an internal means, or how a sign "turns into an internal means of constructing an action" [19, p. 233].

V.P. Zinchenko and N.D. Gordeeva discussed formation of a functional organ based on constructing an objective executive action, while A.N. Leontyev looked at formation of the organ of pitch hearing; however, the studies were done in the pre-digital era [7; 10]. What functional organ is developed in an individual when digital gadgets and digital platforms are introduced into the structure of an objective action?

With the introduction of digital tools, the question arises: what does a digital device in a child's hands mean? What role does it play? O. V. Rubtsova believes that digital tools act simultaneously as both a sign and a tool [11; 12]. This is, in principle, understandable and correct. What is the specification of such a hybrid sign-tool, though? Especially if we are talking about the fact that a gadget in a schoolchild's hands is not only and not so much a tool with a complete set of functions, but rather a window into the virtual world.

This is exactly why they are loved. A shovel or a pen in a person's hands perform a very specific job and nothing else is put into them (with the exception of the play function in children's games, when an object is re-objectified. so that a shovel becomes a horse and a pen becomes a rocket). A symbolic tool also plays a very specific role in the formation of, for example, speech and speech behavior. This has long been described in the literature.

In the case of the gadget, the most important thing is that it is larger than its body and more significant than its function. It is a window into a special virtual world, often replacing the first social world for children and teenagers. The digital not only combines the functions of a sign and a tool, but it also acts as a characteristic of a different type of habitat.

This is why children surrender to its power. When a child uses digital tools and smart gadgets en masse, then, left to his or her own devices (there is no adult in his virtual world), he or she gradually loses the qualities as a subject and becomes an appendix to gadgets, since the desired behavior scenarios are embedded in gadgets (the so-called "script capture" described by the authors earlier [14]. This happens if an adult intermediary abandons the child's field of action. In the child's virtual world, there is no adult or he or she is in the form of an avatar, a digital twin, i.e. a transformed form.

The following questions must be addressed: what does it mean to construct a mediated action that a child constructs with the help of an adult, using digital tools? What is the specificity of this particular act, notably, in two meanings — mediation (child and tool, child and environment) and mediacy (child in relation to oneself), in which gadgets and other digital tools and digital platforms are used? For what purpose are they used in the model of interaction between a teacher-mediator and a student? How does this use affect the attention, vision, perception and other abilities of a student?

Our hypothesis is that when a digital tool is included in the learning process, not only a child but also an adult develops a new vision of an object; tentatively speaking, a third eye or a new functional organ (hereinafter referred to as FO) is formed. A smart system with AI elements that knows more than just processing, storing and transmitting big data, can provide feedback to an adult and a schoolchild that helps them to see things in a way they have never seen before. This effect has already been observed in the example of the introduction of high technologies in medicine to diagnose complex diseases. Experts have noticed that in diagnosing a disease, a medical practitioner receives information from an AI system that was not available previously and could not be obtained without AI, the doctor begins to see the disease, the processes in the body as if he or she has got new eyes, with a new vision opening up. Supplying new combinations and complexes of data, the AI system shows the diagnostician what he has never seen and could not see before.

Functional organ

This new vision, the third eye, can rightfully be called a new functional organ that is formed in a person when he or she carries out complex subject activities using technical means.

The concept of FO was first introduced in physiology by A.A. Ukhtomsky as "... any combination of forces that can lead, all other things being equal, to the same results every time" [16, p. 124], "... any temporary combination of forces that lead to a certain achievement" [16, p. 98]. It referred, obviously, to physical action in which different forces participate, and therefore the coordination and harmonization of the actions of forces, their functional unification, enabling the implementation of a complex action, are important here.

If we translate the concept of FO into activity ontology, then such a neoplasm is formed in a person who performs objective actions using psychological and material tools. For example, a "writing organ" develops, which includes a sign-pen-brush-hand-local zone in the brain-coordination with the entire morphology of the action. In the process of mastering objective actions with a pen, with the help of which a person learns to write signs on paper and comprehend this action, he or she forms a writing organ through multiple operations, the scheme and structure of which are fixed in the brain, where a set of neural ties connections responsible for writing activity is formed.

Following the same logic, there is a temptation to insert a gadget into this chain and assume that it is also built into it and becomes part of a complex functional organ. It is obvious, however, that in this case something more is happening than just performing objective actions. Particularly as a gadget is not a pen, not a shovel, not a hammer, not a spoon. Inherently, as assigned, it acts neither as an objective tool in itself nor as simply a symbolic means, although it performs these functions. A gadget (more broadly, a digital platform) acts as a hybrid means, a way of getting into virtual reality and can be used as a means (map) for navigating this reality. At the same time, a person using it can update it, remake it, fill it with new content.

The "Schoolchildren as Scientific Volunteers" Project

As a case, let us analyze the above-stated problem of FO formation through the "Schoolchildren as Scientific Volunteers" project [18]. It intends, first of all, to form the so-called research vision, a research position in schoolchildren. Curiosity, inquisitiveness and the exploratory nature of learning are certainly present in the ordinary school practice (field experiments, laboratory works in biology and botany). In this project, however, it is suggested that schoolchildren are exposed to the actual format of field scientific research.

The project connects schoolchildren and teachers from different schools in different regions into a certain scientific laboratory network based on the SYNCWOIA digital platform. They undergo training that includes modern digital technologies and tools with elements of artificial intelligence. This is the basis for consistent efforts towards professional orientation of schoolchildren in research activities through a system of scientific volunteering.

In a preliminary survey, schoolchildren showed that they are familiar with simple experiments through school science clubs and have experience of project activities, they like natural sciences. About 70% of them, though, feel the need to expand the diversity of topics and to go beyond the school curriculum. Many schoolchildren want to do real-world field research in situ, outside school, and in project teams. At the same time, they are not aware of what it means to conduct research using information technology, how to check the correctness of the results obtained, etc.

Within the project framework, each participant undergoes training according to a program that includes modules devoted not only to biology and botany, but also to information technology (big data, neural networks, computer vision, etc.). All the materials have been verified by scientists. The training was conducted on the SYNCWOIA online platform, thanks to which students from different regions of Russia were able to join the project.

In the project, children and adults teamed together (each team included 5 schoolchildren and 1 mentor teacher who organized field work). Each team selected locations for conducting research and collecting data on natural objects (birds, mushrooms, soil, plants). One team worked in three locations on average. All the observations were registered in a diary and the objects of observation were photographed. Then the data were entered by the project participants into their own Database. Datasets were formed (using photos, audio descriptions, metrics, location data) based on the Kappa data collection, storage, and management system.

The authors and participants of the project endeavored to understand the place of gadgets and AI elements (datasets) in the formation of the above-mentioned research vision in schoolchildren, the position of a researcher-observer, who has created an artificial cultural formation, a new functional organ. It was essential to figure out how and what kind of a functional organ is formed in a schoolchild who, when studying wildlife, keeps an observation diary, uses a gadget and compiles a collection of observations under supervision of a mentor.

The main results of the project are the activity abilities of students, scientific volunteers associated with gaining new knowledge as to how to conduct research using modern digital technologies. Schoolchildren get hands-on experience of the basics of research work on true-life empirical material and take part in generating a common database.

This article is the first part of our research, stating the problem. Herein, we articulate the problem of forming a research vision in schoolchildren based on the material of the "Schoolchildren — Scientific Volunteers" project and show the role of digital technologies, a digital platform as a training system, with the help of which children undergo self-training and form a vision of natural objects. In the second part of the article, we will present the first conclusions based on the project results.

Project model

Let us show the content of the project in the categories of the main positions, types of work and communications (see the Figure).

Considering the described digitalization problem and the content of the project, we raise the following questions.

1. What role do digital tools, gadgets, and a digital platform play in the project? What is the specificity of their use in the project? What is the intermediary function of digital tools? What are the meaning and purpose of implementing a platform and data sets? How does the performance of previously set learning tasks improve when learning is transferred to the platform?

2. How do the activities that rely on online formats and the digital influence the development of relevant abilities in schoolchildren? In this case, we are talking about the abilities of perception, vision, and hearing. How is such a functional organ as research vision formed in a schoolchild who uses a gadget to conduct research activities within the project framework? How do gad-

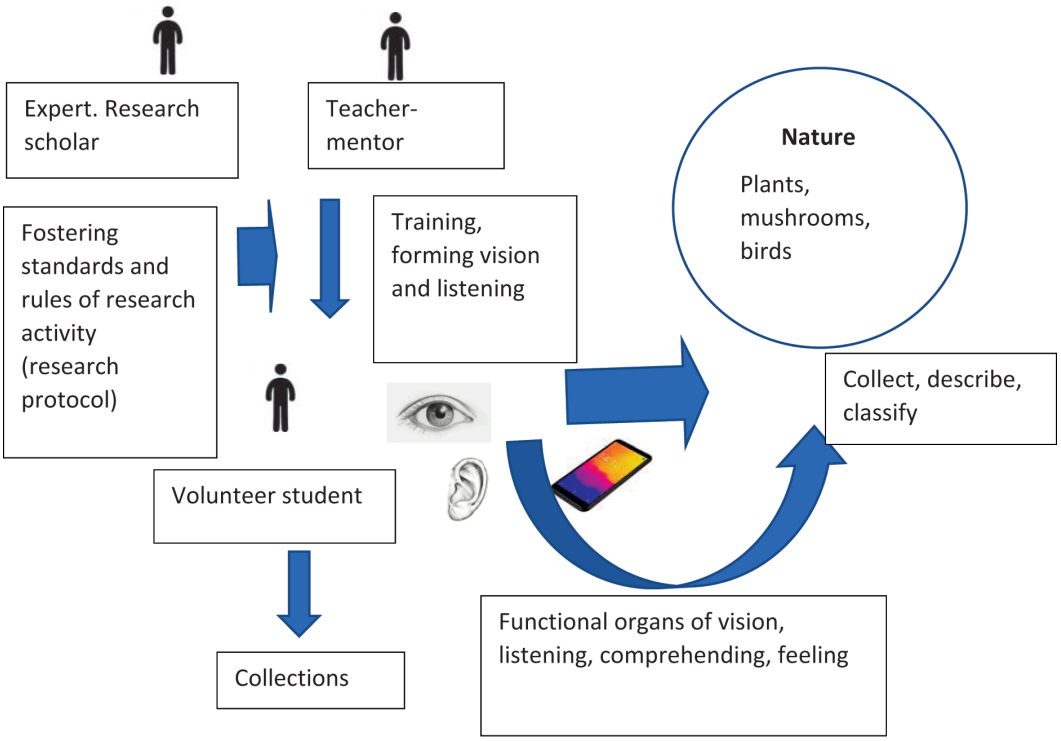

Fig. Project model

gets influence (if they do) attention, perception, imagination, and tactile sensations?

If these organs of vision and hearing are not formed, then a student adapts and uses devices purely automatically, simply collecting information, and himself or herself turns into a functional device for collecting data. He can remember plants and birds, but do not see or hear them.

The key risk of AI is that a person who delegates work to AI, without developing active human organs, turns into a device as such.

Such programming begins even before any gadgets. If a teacher programs students' behavior and does not form human qualities in them, programming takes place before gadgets arrive. Then gadgets intensify it, aggravating the students' subordination to the digital.

In view of the above tasks and risks, the Schoolchildren — Scientific Volunteers project was designed in such a way as to avoid these risks.

The project's aim develop a new organ of vision in schoolchildren, that is, to learn to see, hear, listen and understand nature. It is not just about observing objects; rather, it is about such a vision that corresponds to a certain protocol of scientific observation. Project participants must undergo training in methods of describing locations, mushrooms, animals and birds selected for observation. The difficulty in developing a new view of nature lies in training the ability to see what is important for scientific protocols.

In the development of the modern AI systems, machine-learning models are built on the principle of presenting correct and incorrect examples. Processing them, a model receives feedback on the fallacies of its conclusions and self-corrects. accordingly.

Since AI systems are becoming an integral part of our reality, it is reasonable to introduce practices aimed at understanding the principles of operation of artificial intelligence algorithms into the learning process of schoolchildren [8].

An important part of an AI specialist's job is to compile datasets — sets of labeled data used as a training sample for AI models and for quality control. We follow the well-known definition of a dataset — a set of related observations organized and formatted for a specific purpose [21].

Accordingly, the project proposes to engage schoolchildren and mentors in dataset compilations.

Participants must correctly compile cards for each observation entry in the database. Adding each entry, users pay firm attention to the ethical principles of data collection and labeling (see below). On each type of observation, a consultation is provided by a researcher, who explains which parameters can and should be distinguished in the object of observation. Multiple objects of observation with estimated values of parameters are entered into the database by a mentor and students, and the authorship of the observations is indicated. Subsequently, all the observations are cross-checked by stu-

dents and then the entire database by types of observations is transferred to an expert — a researcher to verify the correctness of the labeling, class definition and description accuracy. In case of an incorrect description, it is returned to students for revision. This generally reflects the process of qualified data labeling in machine learning. It is important that students are assigned the copyright to the objects of intellectual work, assessed by mentor scientists.

Subsequently, a single dataset compiled from all the observation objects provided by schoolchildren can be used to train artificial intelligence models; firstly, by the schoolchildren themselves, and secondly, by scientists. At the same time, the quality of the entire dataset depends both on the contribution of each participant and on the assessment by experts. The better is the quality of the data submitted by a student, the higher is his or her contribution in model training.

How the risk that students become purely suppliers, collectors of data for artificial intelligence systems can be avoided? In fact, it is the students who contribute data for future use, so they are actual data suppliers, but this is not the only or the crucial task faced by them.

A schoolchild needs to complete a project and compare the results with the achievements of peer students, striving for their recognition. The ability to objectively compare own results with those of theother participants is one of the distinctive features of artificial intelligence projects. It is important that datasets created by schoolchildren can have the property of verification — the best labeling can form a dataset, on which other artificial intelligence models will subsequently be verified. Thus, the first risk-avoiding factor is assigning (in the KPI spirit) the result of a particular activity by a schoolchild and its social assessment.

The second important factor in avoiding the risk of becoming an appendage of AI systems is the student's awareness of the data collection acts as part of the overall process of building recognition systems. Participants are not relieved of the need to recognize certain properties of the studied objects (bird species, types of mushrooms, etc.). Therefore, they have a chance to correlate their own ability to recognize new properties, trained in the course of the project, with such an "ability" that is trained in artificial intelligence systems.

Project ethics

A part of research task-setting in this project is ethical regulation as a way of cultural adaptation of risk-generating technology and turning AI into a tool of mediation in cognitive (research) activity.

It is necessary to distinguish between the risks related to AI technology as a type of digital technology and the immediate risks of scientific volunteering, i.e. participation in collecting data for training a neural network. The latter seem insignificant in terms of anthropological and ethical risk labeling. It does not mean, however, that a humanitarian analysis of the risks of involving schoolchildren and other scientific volunteers in developing a technology, the prospects of which make people apprehensive is unnecessary. On the contrary, following the principles of precaution and proactive response [2, p. 234], it is essential to consider what ultimate, currently invisible effects we will encounter with deep immersion of artificial intelligence in human life, in education, in child development. Speaking about the uncertain risks of new technologies, precaution dictates that "the current state of 'no proven harm' should not be interpreted as 'proved absence of harm" [5, p. 55]. New realities and risks generated by science and technology are associated with the danger of k-\o, which not only intensifies the processes of risk multiplication, but also determines the need for a new logic of managing emerging complicated situations — the logic of preventive caution [4, p. 135].

The process of normalizing, habitualizing a new technology can be presented as its transformation into an element of sign- tool mediation. It is assumed that, based on the methodology of cultural-historical psychology, on the one hand, it is possible to trace how innovative search work with digital tools develops research abilities in students, and on the other hand, to evaluate these tools and, above all, artificial intelligence as a tool of mediation. How do thinking, learning activity, and social skills of schoolchildren and scientific volunteers change when the goal of their search efforts is not nature as such, but nature transformed into digital data, and the subject reality is mastered in a new sign-tool environment — on digital platforms and with the help of artificial intelligence?

At the data collection stage of a school project, goal orientation and motivation should be well thought out, it is necessary to explain how data will be used in the future, how important it is that they are as complete and accurate as possible and differentiated, so that volunteers must earnestly work hard before a photo or a description of a plant becomes data rather than just a copy. In order to turn the final result — datasets and the AI model created on their basis — into a tool of mediation that facilitates thinking and personality development, it is important to form a semiotic environment consisting of frames

of a responsible attitude to risk-generating technologies. To become part of the culture genesis, newly created digital tools of activity must undergo value codification, i.e. the meaning of useful, safe, ethically acceptable tools must be assigned to them.

Therefore, starting from the stage of data collection and dataset building, it is necessary to include ethical data support, which implies the use of tools for conscious involvement of a scientific volunteer in the development of a risk-generating technology. Such tools are part of the mediating semiotic environment, the key concepts and principles, that perform the functions of cultural adaptation, "settling in" and "living through" new technologies. An emotional-and-cognitive dominant of the need for ethical support must be created.

Conclusion

In the first, statement-making part of the article, we highlight the problem of the negative impact of digital media on children, and outline the need to develop appropriate KPI-models of mediation, overcoming the limitations of stimulus-reactive algorithmic models. Based on the material of the "Schoolchildren — Scientific Volunteers" project, we propose to develop such a model and describe its structure and tasks associated with formation of the research vision in schoolchildren using digital mediating tools. The second part will show how the project proceeded, present the first results and discuss the difficulties in implementing the tasks.

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Text Comprehension: A Synthetic Psychological/ Linguistic Framework

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The article describes an interdisciplinary framework which we have developed to study verbal text comprehension based on a combination of psychological and linguistic approaches. The comprehension phenomenon is considered to be a result of a reversible transformation between verbal symbols and mental images of the to-be-comprehended material, with the obligatory condition of preserving its semantic invariance. We emphasize a gradual nature of comprehension and its reliance on a coordinated activity of the recipient's cognitive and emotional mechanisms. We pay particular attention to the negative potential of subjective projections in the comprehension process. We also describe the method of in-depth semi-structured interview, which allows for a multi-level explication of the processes involved in building up a mental representation of the text's content. As a model for studying the comprehension phenomenon, we suggest a short story "The Invisible Japanese Gentlemen" by G. Greene, which has a complex intrinsic structure of implicit meanings. Using linguostylistic and propositional analyses, we described the story's structure of implicit meanings and identified its various elements (87 in total) and 66 key textual propositions. The reliability analysis showed a high degree of consistency between the experts' ($\alpha = 0.6$ for elements, $\alpha = 0.67$ for propositions). This indicates that this text and the structure of its implicit meanings can serve as an adequate stimulus material for studying the comprehension phenomenon. Finally, based on in-depth semi-structured interview data ($N = 30$), we developed a set of quantitative criteria for assessing the completeness of text comprehension on a 5-point scale.

Keywords: text, comprehension, implicit meanings, levels of comprehension, linguostylistic analysis, propositional analysis, in-depth semi-structured interview, subjective projections.

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Уровни понимания и градуальность смысловой организации текста: комплексный подход на стыке психологии и лингвистики

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В статье развиваются идеи предлагаемого нами подхода к изучению понимания вербальных текстов, основанного на совмещении психологической и лингвистической традиций. Феномен понимания рассматривается как результат взаимообратимого перевода осмысляемого содержания из вербально-символической формы в образную с сохранением смыслового инварианта. Подчеркивается, что понимание имеет градуальную природу и зависит от слаженной работы когнитивных и эмоциональных механизмов реципиента. Особое внимание уделяется описанию психических проекций как потенциальной угрозы пониманию, а также метода глубинного полуструктурированного интервью, открывающего возможности для «послойной» экспликации процесса построения ментальной репрезентации прочитанного и сопровождающих его затруднений. В качестве модели для изучения феномена понимания предлагается художественный рассказ Г. Грина «Невидимые японские джентльмены» со сложной организацией имплицитных смыслов. Для этого рассказа на основе лингвостилистического и пропозиционного анализа была описана уровневая структура имплицитных смыслов, выявлены 87 ее элементов и 66 ключевых пропозиций. Проверка согласованности экспертных оценок показала ($\alpha = 0{,}6$ для элементов и $\alpha = 0{,}67$ для пропозиций), что выбранный текст может служить адекватным стимульным материалом для изучения процесса понимания. На основе данных глубинных полуструктурированных интервью ($N = 30$) была разработана шкала количественной оценки полноты понимания текста, включающая пять уровней, каждый из которых получил содержательное описание. Новизна предложенного нами инструмента обусловлена тем, что он позволяет учесть как особенности структуры представленных в тексте смыслов, так и специфику той когнитивной деятельности реципиента, которая лежит в основе реконструкции текстового содержания.

Ключевые слова: текст, понимание, имплицитный смысл, уровни понимания, лингвостилистический анализ, пропозиционный анализ, глубинное полуструктурированное интервью, субъективные проекции.

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Introduction

In the field of the psychology of comprehension, numerous research strands exist, each varying in goals and employing different research methods. Among these, two primary directions can be identified. The first one focuses on the social aspects of comprehension, treating it as a feature of interpersonal/intergroup communication and a result of such communication. Here, researchers are usually interested in tools that communicants use to exchange information, and the main emphasis is placed on the impact of various situational, behavioral, and cognitive features on the efficiency of the communication process [7; 16]. Typical stimuli in such studies include real-life situations, imitations, and video recordings. The second major direction is aimed to explicate the cognitive underpinnings of comprehension. The focus here is on the cognitive processes of an individual unfolding

within their mental reality interiorized interpersonal relations and, if successful, leading to the comprehension and acquisition of new meanings [17; 27; 33]. Thus, researchers working in this field are more interested in the specifics of mental representations' build-up and functioning, patterns of cognitive processing underlying comprehension, and typical cognitive errors reducing its efficiency. This type of study usually involves various cognitive experiments.

One of specific cognitive experiments is about *text comprehension* regardless of whether the text is verbal [1; 5], iconic [20; 26], or creolized [22]. Any text implies an act of communication between its author (who imparted certain meaning into it) and its reader (who is supposed to extract this meaning). As the author's ideas are present in a text in an encoded form, a reader must identify the main information spots in a text and perform several intellectual operations that will allow him/her to 'unpack' the author's ideas, reconstruct them in his/her mental reality and, eventually, build up a semantic representation of the entire text. The more correctly these operations are implemented, the more thorough and faithful the text comprehension is.

From the cognitive psychology perspective, correct and thorough comprehension of a text or any other object is subject to two requirements. First, the recipient must represent the image with both mental images and verbal symbols. Second, the reader should be able to convert mental images into verbal symbols and vice versa without loss of any significant information [11; 34]. These two operations allow extraction of the most meaningful and context-independent features of an object, which are usually referred to as *meaning invariants*, which are essential for conceptual thinking as the most efficient form of human intelligence. Since conceptual thinking is highly dependent on socialization and targeted systemic education, it is not unusual that even adults with high psychometric IQ lack it [12].

Underdeveloped conceptual thinking, poor knowledge of the specific subject, a lack of time, and certain personal traits might prevent a person from the complete comprehension of a text. However, they may achieve partial comprehension with varied success. This is why comprehension is best described not as a binary ("got it"/"did not get it") but rather a gradual mental phenomenon. The gradual approach to comprehension was supported by many classical authors who distinguished different levels of comprehension in accordance with certain cognitive operations a recipient must perform to achieve each of these levels [12; 21; 23]. Noteworthy, cognitive behavior of recipients manifesting different levels of comprehension of a text as a string of verbal symbols corresponds to different levels of development of their symbolic operations that builds up through cultural-historical evolution of higher mental functions from their natural to cultural forms [13; 29]. Our data show that healthy adults with high education demonstrate all levels of text comprehension – from literal interpretations based on superficial facts to highly generalized abstract representations based on complex social and cultural background [35; 38]. We link it to the specificity of the comprehension process per se.

Cognitive and emotional facets of comprehension

In contrast to a na ve view of thinking as the most abstract and 'pure' cognitive phenomenon that has nothing to do with emotional processes, there is a substantial amount of data providing clear evidence that thinking is not only linked to emotions but directly depends on them. In particular, emotions were demonstrated to serve as heuristics that direct and regulate thinking as well as provide metacognitive judgements on whether the task was successfully solved or not even before a person becomes aware of it [10]. Moreover, modulation of respondents' emotional states affects their creativity in answering cognitive tasks [39]. Therefore, comprehension as a result of thinking is also viewed as (at least) a two-fold phenomenon that incorporates cognitive and emotional aspects [30; 32].

Based on this gradual multifaceted approach, we studied the comprehension of verbal jokes as specific types of texts and described five levels of ***cognitive*** comprehension and three levels of ***affective*** comprehension [35]. Cognitive comprehension results from formal cognitive operations aimed at decoding the text's structure. This type of comprehension is a result of mental reconstruction of the key idea of the text, which is achieved through (1) identifying a polysemic keyword(s) and all its/their meanings, (2) detecting all actors/characters described in the text, (3) mental reconstruction of all semantic connections between them, (4) metacognitive control over these types of mental activity. Affective comprehension, in turn, requires the ability to develop an emotional contact with each character described in the text and depends both on (1) the emotional attachment to these characters and on (2) a differentiation between the affective reactions of the characters and those of the reader.

These two types of comprehension – cognitive and affective ones – are considered largely autonomous; however, they might still affect each other to a certain extent. Notably, in healthy individuals, higher levels of cognitive comprehension usually correspond to higher levels of affective comprehension. Furthermore, high levels of affective comprehension might compensate for the lack of cognitive comprehension, and vice versa, which results in satisfactory overall comprehension [35; 38]. Interestingly, psychiatric patients demonstrate not only lower levels of both cognitive and affective comprehension compared with healthy controls but also lower connection between these two sides of comprehension which might even lead to mutual decompensation due to disintegration of mental operations underpinning semantic processing [18].

Subjective projections

Another illustration of the significant role emotional processes play in text comprehension is *subjective projections* that often hinder the build-up of comprehensive semantic representation and prevent reaching high levels of cognitive and affective comprehension in both healthy readers and psychiatric patients [35]. Subjective projections are distortions of the original information presented in a text that a reader is (partly) unaware of. They appear (1) when the text's content triggers some domains of a reader's personal experience related to emotionally loaded situations (current ones or those that happened in the past), values, beliefs, fears, etc., and/or (2) when the reader struggles with decoding the text's cognitive structure, which results in multiple gaps in its mental representation. To "patch" the mental representation, these gaps are filled with subjective projections, which significantly distort the text's meaning by bringing in additional, mostly irrelevant, meanings. In our previous research, we have shown that subjective projections appear in both healthy individuals [35; 43] and psychiatric patients [18; 25]. Although they are mostly destructive, in some cases they can play a more neutral role in semantic reconstruction of a text: particularly, if the reader possesses substantial metacognitive resources, which allow for monitoring and controlling over subjective projections as well as for differentiating them from the objective information provided by the text, these projections do not impair comprehension. If, however, metacognitive regulation is weak, such a control cannot be performed; in this case, subjective projections, despite being the reader's own mental production, are mistaken by him/her for an external information extracted from the text. Cognitive distortions of this type inevitably lead to inefficient comprehension [36].

Semi-structured in-depth interviews as a tool for studying comprehension

Despite the destructive potential of subjective projections, their very emergence and their functional patterns can provide us with some important insights on *intelligence*. In particular, defining exact ways of deficient representations' build-up as well as determinants of other types of cognitive errors can suggest ways for their potential amelioration. This requires a scrupulous step-by-step online reconstruction of the reader's first-person experience underpinning the development of fully-fledged comprehension. In a natural, non-experimental setting, this experience stays hidden inside inner reality of a reader and, thus, remains unreachable for an observer. However, in purposefully organised research setting it can be explicated, at least partially, using specific research tools, such as *semi-structured in-depth interview* custom-designed for specific cognitive investigations. Semi-structured in-depth interview is one of the so-called soft methods that have recently gained huge popularity in social sciences and psychology. Soft methods differ from traditional highly standardized psychological tools by their flexibility and adaptability which enable a tight, stable and trusting contact between researchers and participants – the type of contact that can never be obtained in conventional experimental settings, sterile and impersonal [19]. Moreover, by carefully following a unique subjective logic of each participant's thinking, the researcher can obtain various details about their intellectual status, patterns of individual cognitive behavior, productive and destructive cognitive habits, self-limiting beliefs, etc.

It is only possible to meet these requirements by investing a proper amount of time in thorough examination of stimulus text at the preparatory stage of research. This preparation often includes *expert assessment* aimed at (1) a detailed description of the text's cognitive structure (including the explication of main semantic units and semantic links between them) and reconstruction of the author's main ideas and messages; (2) compiling a list of cognitive operations a reader has to undertake in order to understand these ideas and messages; (3) designing a model of an "ideal" comprehension which will be used as a reference for assessing the interpretations of the stimulus text provided by the participants later.

A combination of psychological and linguistic approaches

We propose that the most promising approach to the expert assessment of verbal texts is a multidisciplinary one, combining both psychological and linguistic theoretical frameworks. Importantly, both psychologists and linguists agree that, first, the comprehension of a text is more than just decoding of verbal strings and includes a range of complex cognitive operations and, second, the process of comprehension as well as its result should be considered as layered, gradual phenomena.

Different researchers have proposed different models to describe the gradual nature of comprehension. Most of these models agree on using the number of meanings (and correspondences between them) extracted by the reader as an index of the text's comprehension level. Based on models used in psychology and in linguistics, at least four main criteria for distinguishing the different levels of comprehension could be posited:

1. Text's structure and cognitive operations necessary for its decoding.
2. Specificity of the meanings implied in the text by the author.
3. Cognitive behaviour of the reader.
4. Specificity of the text's meanings reconstructed by the reader.

It is not surprising that the most detailed models based on the text's structure originated in linguistics

[3; 41], although psychologists sometimes also use the same logic [21]. Another popular approach in linguistics is based on the specificity of the meanings put into the text by its author.

Psychologists, in turn, tend to focus on readers' cognitive behaviour – a behaviour aimed at understanding complex relations between external objects and situations, as well as reader's cognitive styles and thinking patterns [31; 34]. Also, cognitive behavior is (1) aimed at the perception and processing of information necessary for problem solving; (2) grounded in and navigated by an individual's cognitive needs; (3) a behavioural manifestation of both cognitive abilities and personal traits of an individual; (4) based not on separate cognitive operations but on an integral system of an individual's cognitive resources [44]. Therefore, cognitive behaviour includes cognitive habits, heuristics, problem areas and other cognitive phenomena based not only on intellectual abilities but also affected by an individual's personality in general [Ibid.].

Previously, an approach based on readers' cognitive behaviour and cognitive operations they perform was suggested by V.I. Narolina [24]. L.E. Tumina introduced a model of comprehension based on the specificity of the text's meanings reconstructed by a reader, which includes three levels [31]. Later, O.V. Shcherbakova and E.A. Nikiforova combined these two approaches to develop a psychological technique for structured quantitative assessment of metaphorical texts' comprehension [25; 45]. Another promising combination of the above two approaches was devised by T.A. van Dijk and W. Kintch, who differentiated levels of comprehension in accordance with the text representation quality [46]. The important role that semantic structure of a text plays in its comprehension by a reader is also highlighted by researchers developing the Schema-Assembly theory [42]. This model implies that text comprehension is based on both bottom-up and top-down processes (bridging text and its reader and reader and the text, correspondingly). Indeed, considering both the specificity of the cognitive behaviour of a reader and the specificity of the text's meanings reconstructed by them seems to be the most productive approach to considering *the role of the reader* in text comprehension.

To sum up, although the various approaches to comprehension differ in their theoretical bases and suggested methodologies, there are important similarities in their view of comprehension as a gradual phenomenon. Building on this previous research, we argue that the optimal approach to comprehension is a synthetic one, which should meet the following two criteria:

1. Taking comprehension as a gradual process involving various cognitive operations based on different domains of the reader's experience and knowledge, in relation to the gradual structure of the text.

2. Considering the specificity of meanings imparted by the text's author and later reconstructed by the reader.

Insights from texts with implicit meanings

As a synthetic theoretical framework, we propose studying *implicit meanings* which is relevant both for assessing text-specific factors and for the analysis of readers' psychological traits. Implicitness is a feature of linguistic communication that makes the recipient aware of the relations between the unit(s) of a message that are otherwise covert, or even allows the creation of new relationships between these units [15, p. 21]. Implicit meanings are not directly represented in the text; rather, they can be explicated when a reader uses their background knowledge to match certain structures of the text with one another [15]. Some authors claim that implicitness is a basic feature of any message in natural language [28], which means that explication of implicit meanings is a prerequisite for complete comprehension of any text. This approach suggests the "possibility to use language for expressing meanings to various degrees of explicitness" [4, p. 70], and it allows considering (1) all types of unobvious/non-literal/metaphoric meanings or ambiguity and (2) the gradual structure of comprehension.

Therefore, the most informative model for studying comprehension involves *texts with complex multilayered structure of implicit meanings*. As a text of this type, in our own research we used the short story "Invisible Japanese Gentlemen" by G. Greene [14], whose Russian translation was subjected to rigorous linguistic stylistic and propositional analyses. These analyses resulted in a list of 87 independent elements of the structure of implicit meanings that were found at stylistic, syntactic, lexical semantic, textual, conceptual, and intertextual levels. In addition, we revealed 66 key propositions of the short story. Later, the results of both analyses were additionally supported by expert analyses performed independently by a sample of professional linguists (n = 8) (see [2]; Cronbach's alpha test confirmed the reliability of experts' evaluations (α= 0,6 for elements and α = 0,67 for propositions). These results clearly show that 'Invisible Japanese Gentlemen' (or at least its Russian-language version) and the structure of its implicit meanings may be well-suited to be used as stimulus material for studying the comprehension process.

Next, we conducted 30 semi-structured in-depth interviews with participants (60% females, aged 24–53, Me = 40,5, who read the G. Greene's short story for the first time) in order to to collect a range of different interpretations of the short story. Based on the results of qualitative analysis of the interpretations, we developed a scale for quantitative assessment of text comprehension [37]. Correlations between the levels of comprehension achieved by readers and various types of implicit meanings present in their verbal reports (assessed on a binary scale: "present"/"absent") can be used as a source of additional information about the comprehension process [Ibid.].

Texts with complex leveled organization of implicit meanings are a promising model for studying comprehension due to such features as:

1. Complexity that prevents automatic decoding [3] and requires a "slow-motion" mode for examining cognitive operations that underlie meaning reconstruction.

2. Potential connection between different types of implicit meanings and mental processes (both cognitive and emotional, such as comparison and detecting similarities, mental spaces build-up [26; 35; 46], development of empathic contact [1; 35], generalization [3; 41; 46], etc.); this allows a quantitative assessment of comprehension as well as a qualitative description of the reader's cognitive behaviour that remains invisible when using other types of stimuli.

3. A large variety of implicit meanings which differ from one another in terms of their structure, content and, accordingly, cognitive operations they require for interpretation. Such a variety, along with a text's redundancy, provides an opportunity for a more detailed analysis considering a broader spectrum of individual differences in text comprehension process. As a result, the obtained data allow extraction of the most typical patterns of comprehension and a rich description of cognitive strategies readers use for meaning reconstruction, as well as of common cognitive mistakes reducing the comprehension efficiency.

4. Layered organization of meanings which are to be interpreted. Based on this, the cognitive behaviour of a reader can be analysed at several different levels (micro contextual level, level of horizontal connections between various elements of the same text level, level of vertical connections between different text levels), which opens ways for assessment of both comprehension depth and dynamics. Through qualitative analysis of the reader's ability to detect and process different types of implicit meaning in texts (as well as the analysis of mistakes he/she commits in the process) a researcher gets an indirect access to mental operations that underpin comprehension.

Conclusions

The combined approach we propose here can help to fill the gaps in our understanding of comprehension processes. In particular, it can provide more accurate operationalization of comprehension and open ways for linking individual differences to individual differences in choosing certain text structures as starting points for meaning explication and specifics of text's parcellation. Additionally, this synthetic methodology allows us to view the comprehension process as a successive mental processing of the text's semantic structure.

Finally, it is worth noting that one of the key open questions in comprehension research is an assessment of comprehension dynamics and underlying mental operations in real time. This issue cannot be adequately tackled without considering the individual psychological traits of a reader and the specifics of his/her cognitive behaviour – along with various textual factors. Therefore, the most promising approach to comprehension should integrate the achievements of both psychology and linguistics, allowing to study simultaneously both sides of this phenomenon. Within this approach, we suggest making use of verbal texts with complex structure of implicit meanings, as texts of this kind open ways for (1) explication of cognitive operations that belong to different levels of mental activity and provide the reconstruction of text's meaning, and (2) linking these cognitive operations to different levels of the text's structure.

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Incubation and Activation of the Semantic Network

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The issue of incubation is a central and paradoxical topic in the psychology of thinking and creativity. The paradox arises from the observation that problem-solving can advance during periods when the solver is not consciously focused on the problem but is instead engaged in unrelated activities. Despite extensive research on incubation, a unified explanation for this phenomenon remains elusive. This article introduces a new theoretical approach characterized by two distinctive features. First, it advocates for the examination of the general problem of incubation through tasks that facilitate a precise analysis of the underlying processes—specifically, Mednick's triads. Second, to enable a comprehensive analysis of problem-solving processes, this approach incorporates methods from general network theory. Consequently, the theoretical model developed to elucidate incubation encompasses two levels of processes: the propagation of activation across the semantic network and the control processes driven by goal-setting when the individual accepts the problem.

Keywords: Incubation, network models, Remote Associates Test.

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Феномен инкубации и активация семантической сети

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Проблема инкубации является одной из центральных и парадоксальных в психологии мышления и творчества. Парадоксальность проблемы связана с тем, что решение задачи продвигается в то время, когда решающий не думает о задаче, а отвлечен на совсем другие дела. Хотя инкубация довольно интенсивно исследуется в разных странах мира, до сих пор не существует единого объяснения этого явления. В статье изложен новый теоретический подход, который отличается двумя особенностями. Во-первых, предлагается исследовать общую проблему инкубации на материале задач, допускающих максимально точный анализ задействованных в их решении процессов — триад Медника. Во-вторых, для реализации точного анализа процессов решения задач используется подход из общей теории сетей. В итоге теоретическая модель, разрабатываемая для объяснения инкубации, включает два уровня процессов: распространение активации по семантической сети и управляющие процессы, исходящие из целеполагания при принятии задачи субъектом.

Ключевые слова: инкубация, сетевые модели, Тест отдаленных ассоциаций.

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In contemporary psychology, combining the study of significant theoretical problems with detailed analyses of underlying processes remains a rare achievement [8]. This limitation is particularly evident in the psychology of thinking. On one side, the field investigates general phenomena such as incubation, insight, and Eureka moments. On the other, it develops precise — often computational — models to understand specific problem-solving tasks. However, these two approaches frequently operate in isolation. The study of general phenomena tends to abstract away from the specific processes involved in problem-solving, while computational models often focus narrowly on the details of task-specific processes, neglecting broader theoretical questions.

This article aims to delve into the relationship between these approaches and propose a framework to reconcile their differences. To achieve this, we will focus on a well-documented phenomenon and a corresponding task type where this phenomenon is prominently observed. The phenomenon should be sufficiently studied and crucial for understanding creative thinking processes. The phenomenon

of incubation meets these criteria and will be the primary focus of this discussion.

The task — or rather, the category of tasks — used to investigate thinking should allow for precise descriptions of problem-solving processes, including computational modeling. In recent years, advances have enabled the precise modeling of processes involved in solving tasks from Mednick's Remote Associates Test (RAT), which will serve as the primary example in this analysis. These tasks consist of word triads where participants must identify a fourth word that forms a meaningful association with each word in the triad. For example, given the words "red," "sword," and "meat," the correct answer is "fish" (yielding the combinations "red fish," "swordfish," and "neither fish nor fowl").

The development of detailed models of linguistic associative networks over the past decade has made it possible to describe how participants solve "Mednick-type" tasks by navigating the semantic network's connections. These tasks are also widely employed in studies on the phenomenon of incubation.

It is worth noting, however, that Mednick's triads are not the only type of task relevant in this context. Anagrams, for instance, are also extensively used in incubation research, and contemporary methods have been developed to describe and manage the processes involved in solving them.

This article will include a focused review of studies on incubation and the network mechanisms underlying the resolution of Mednick's triads. The review will reveal a gap in existing research: even when Mednick's triads are used to study incubation, detailed analyses of the problem-solving processes involved are often absent, leaving critical questions about how these processes relate to incubation unanswered. Conversely, studies that focus on the detailed processes of solving Mednick's triads rarely consider the role of incubation or related phenomena in solving other types of problems.

Following the review, we will propose a constructive program aimed at studying incubation while incorporating a detailed understanding of the processes involved in solving Mednick's triads. In conclusion, hypotheses will be presented on how a unified cognitive system architecture might emerge from integrating general and detailed approaches to problem-solving.

The Phenomenon of Incubation

The phenomenon of incubation was first mentioned in the introspective works of notable 19th-century thinkers. For instance, German mathematician Carl Gauss, after a groundbreaking discovery in number theory, reflected: "Finally, two days ago, I succeeded — not through my greatest efforts, but by God's grace. Like a flash of lightning, the problem was suddenly resolved. I cannot say what guiding thread connected what I already knew with the insight that brought success" [1, p. 71].

Henri Poincar further explored and provided an explanation for the incubation phenomenon [6]. He theorized that during periods when individuals are not consciously working on a problem, their unconscious mind remains active. This activity resembles the chaotic motion of "concept molecules," colliding like molecules in an ideal gas. Occasionally, these collisions produce new, harmonious combinations that surface as ideas, accompanied by a profound sense of illumination [7].

The term "incubation" gained wider recognition after Graham Wallas's seminal work [62], which outlined four stages of the creative process: preparation, incubation, illumination, and verification. In the preparation stage, individuals consciously attempt to solve a problem. During the incubation stage, they abandon these efforts and divert their attention to other activities. This shift enables unconscious processing, leading to the illumination stage, characterized by the sudden realization of a creative solution — what modern psychology refers to as insight [54]. Finally, in the verification stage, the validity of the idea is tested, and the solution is formalized [41].

While some researchers have questioned the validity of Wallas's four-stage model [20], it continues to serve as a widely adopted framework for conceptualizing and analyzing the creative thinking process.

Experimental Methods of Studying and Explaining Incubation

Modern research on incubation relies on two experimental paradigms. The first is referred to as "delayed incubation." In experiments following this paradigm, participants are divided into two groups: experimental and control. Participants in the experimental group first attempt to solve a set of problems, then take an incubation break, and afterward try again to solve the unsolved problems. In the control group, participants also first attempt to solve the tasks but immediately make a second attempt without any break. The incubation effect is calculated as the difference in problem-solving success between the groups during the second attempt [3].

The second paradigm, "immediate incubation," involves participants taking an incubation break immediately after receiving the task instructions

[16]. Meta-analyses have shown that both delayed and immediate incubation can improve task-solving success [46, 55].

The cognitive mechanisms underlying the incubation phenomenon are a topic of significant debate among researchers. Numerous theories and hypotheses have been proposed, some of which have undergone experimental testing. These explanations can be broadly divided into two approaches: specific and non-specific. The specific approach suggests that active processes aimed at finding a solution occur during the incubation period. In contrast, the non-specific approach posits that incubation merely creates more favorable cognitive conditions for finding a solution.

One of the simplest explanations within the specific approach is the "conscious work hypothesis," which suggests that problem-solvers intermittently return to the task during the incubation period, even though they later fail to recall doing so [64]. However, experimental studies have not found evidence supporting this view [23, 24, 10].

Some experimental studies have demonstrated that distracting participants from solving a task leads to an incubation effect [16, 17, 24]. A meta-analysis by M. Strick confirmed the existence of this effect [55]. These findings have led to the development of the "unconscious work theory," which posits that unconscious processes aimed at solving the problem occur during incubation. However, the precise nature of these processes remains unclear. One hypothesis is that during the incubation period, activation spreads through elements of the associative memory network, potentially bringing key elements into working memory [25, 30]. However, experimental results have been mixed [47, 66]. Thus, while this hypothesis is promising, the mechanisms of unconscious problem-solving remain poorly understood.

Proponents of the non-specific approach argue that no problem-solving occurs during incubation; rather, the break merely creates better conditions for finding a solution. For instance, the "fatigue dissipation hypothesis" suggests that incubation allows individuals to recover from unsuccessful solution attempts [45]. However, this idea is called into question by findings that solving unrelated complex tasks during incubation often positively affects solving the main task [44].

One of the most influential theories of incubation is the "selective forgetting hypothesis," which proposes that incubation facilitates finding the correct solution by enabling the forgetting of fixations [49]. Many experiments have shown that the incubation effect occurs only when participants were initially provided with stimuli that misdirected them from the correct answer [29, 38, 50, 51, 61]. However, some studies challenge the claim that fixation forgetting is the mechanism at play. For instance, it has been shown that the duration of incubation does not affect the magnitude of the effect [46], incubation often succeeds without prior fixation procedures [16], and it does not reduce the number of fixation-related answers in the second attempt [58].

Another explanation for the incubation phenomenon is the "attention withdrawal hypothesis" [44]. Gestalt psychologists of the mid-20th century linked insight to a sudden shift in how a problem is perceived, involving the restructuring of the existing gestalt [65]. When tackling a problem, individuals often form an initial organizing assumption that integrates elements of the problem into a coherent structure. However, this assumption can be incorrect, leading to a dead end [43]. In such cases, incubation may help withdraw attention from the erroneous organizing assumption, allowing for the formation of a new, correct structure. In experiments with an insight puzzle, Segal (2004) found that the incubation effect was not dependent on the duration of the break. Segal concluded that false assumptions were not forgotten (as suggested by the selective forgetting theory) but were overcome instantaneously through attention shifts. Furthermore, Segal found that solving complex incubation tasks produced a stronger incubation effect, likely because they require greater concentration, which better withdraws attention from the false assumption [44].

According to the "opportunistic assimilation theory," incubation is seen as a process of waiting for external cues [45]. These cues are assimilated by the cognitive system by matching them to "failure markers" — elements of long-term memory formed when the solution reaches an impasse. These markers encode features of the task as characteristics of environmental stimuli. When new information relevant to the solution is encountered, the problem representation is restructured, increasing the likelihood of insight. This theory was tested in several experiments [19, 31], which demonstrated that cues could aid problem-solving but did not produce an incubation effect. Thus, no evidence has conclusively supported the validity of the opportunistic assimilation hypothesis.

While most incubation research has been conducted in Western psychology, important theoretical developments have also emerged in Russian science. For example, in the work of the prominent Russian researcher Ya. A. Ponomarev, ideas central to understanding the mechanisms of incubation are discussed. According to his structural-level model

of the creative process, the emergence and articulation of creative ideas result from the sequential collaboration of the logical and intuitive poles of thinking. In terms of his theory, the incubation period represents a shift to an intuitive mode of thinking, granting access to a vast repository of knowledge and connections formed during past activities without conscious involvement. Ponomarev referred to these as "by-products of action" [5]. These ideas have been further developed in recent works, such as a series of experiments by E.A. Valueva and N.M. Lapteva, which tested a model suggesting that incubation serves to eliminate barriers preventing the conscious realization of pre-activated implicit solutions [2, 4].

Incubation in Problem Solving Across Various Tasks

To synthesize and organize the findings of numerous studies, several meta-analyses [46, 55] and review papers [18, 22] have been conducted. These works not only confirm the existence of the incubation effect but also offer a detailed examination of the factors influencing its magnitude.

Sio and Ormerod's meta-analysis assessed the strength of the incubation effect across different types of creative tasks. Their findings highlighted that the duration of the preparatory phase is crucial for many tasks, while the length of the incubation period is significant only for divergent tasks. The authors suggest this supports the unconscious work theory, as the process of activation spreading through a semantic network — which takes time — may be especially important for divergent problem-solving. For linguistic tasks, such as the Remote Associates Test (RAT), the most substantial incubation effect was observed when the break was filled with simple activities. The authors attribute this to the selective forgetting hypothesis, proposing that fixations often hinder the problem-solving process in such tasks, while simple tasks help redirect attention, reducing fixation effects [46].

In summary, the incubation phenomenon is well-supported by experimental evidence. It likely plays a significant role in real-world creative processes, making its clarification essential for a theoretical understanding of thinking.

Despite its broad application across various tasks, incubation is often studied without a detailed investigation of the specific processes underlying task solutions. General explanatory constructs — such as conscious and unconscious work or fixation — are applied as if universally valid. However, deeper analyses of task-solving processes for divergent and convergent thinking, decision-making, and other cognitive tasks reveal that these constructs are often unnecessary or unused. For instance, does fixation occur in solving anagrams or Mednick's triads? This question is far from trivial and demands rigorous study. What exactly constitutes the "work" of solving these tasks? Providing a definitive answer is unlikely to be simple. At a minimum, as will be shown later, precise studies of these problem-solving processes often employ a different, more detailed terminology.

Network Models for Solving RAT problems

n exciting avenue for advancing research in this field is the adoption of methodologies grounded in cognitive network models [12, 30]. As verbal tasks, Mednick's triads are believed to be solved through the spread of activation within a semantic network, linking words with sufficient associative proximity, as suggested by contemporary cognitive psychology.

This network-based interpretation of cognitive activity in solving triads stems from Mednick's foundational work. He theorized that individuals with many weak associations in their semantic networks are better at forming new connections through distantly related elements — a hallmark of creativity [32]. Conversely, those with networks dominated by fewer, stronger associations — typically more conventional — are less adept at generating creative ideas. This hypothesis has spurred the rise of network-based approaches, now widely used to model mechanisms in RAT tasks and assess creative potential [27, 37].

This perspective allows for more precise reformulation of hypotheses about incubation, effectively translating them into a new scientific framework. Conscious and unconscious work during incubation can be reconceptualized as the continuation of activation spreading processes while attention shifts to a different task. The boundary between these two types of work becomes less distinct in this context: cognitive models like J. Anderson's ACT-R suggest that activation processes bring elements into consciousness once a specific activation threshold is reached. Opportunistic cue assimilation aligns with this view, as cues activate specific network elements, enhancing their effectiveness as intermediaries in problem-solving.

Mechanisms like fixation forgetting and attention withdrawal can also be reframed within this framework. From a semantic network perspective, these processes may reflect activation getting stuck

on irrelevant elements, hindering progress toward target nodes.

Nevertheless, activation spreading alone cannot fully explain goal-directed problem-solving. While relevant to free association and daydreaming, such processes must operate within boundaries set by task-related goals. Understanding problem-solving requires integrating the role of executive control structures, which may contribute to incubation.

For creative, non-algorithmic tasks — where solution paths are unclear — executive control structures might function more by disinhibition than activation. This contrasts with algorithmic tasks, where control structures focus cognitive resources on predefined steps. In non-algorithmic tasks like Mednick's triads, control mechanisms prevent the system from lapsing into free association while guiding focus toward goal-relevant content. Effective focus requires supporting relevant activation while inhibiting interference, a balance that becomes increasingly challenging in creative tasks where predefined algorithms are absent.

When paired with network models, executive control structures offer a means of disinhibiting irrelevant nodes in the semantic network, preventing excessive activation spreading and preserving goal-directed behavior.

This approach also provides a fresh cognitive interpretation of fixation. Fixation may arise not from activation getting stuck in the semantic network but from persistent constraints imposed by executive control structures. Incubation, in this case, may work by gradually relaxing these constraints over time, enabling new solutions to emerge.

Refining Approaches to Incubation: Insights from Mednick's Triad-Solving Processes

The considerations outlined above mark a substantial advancement in experimentally validating theoretical models. A successful experimental approach to addressing these challenges should enable precise intervention in the processes underlying the resolution of Mednick's triads. This can be achieved effectively using the psychological method of priming, both positive and negative, as outlined by Falikman and Koifman [9]. Priming provides a means to control the activation levels of specific elements within a semantic network.

In the framework of incubation studies for RAT problems, priming serves two primary purposes. First, it can be used to assess the state of the semantic network during the problem-solving process. In this case, the problem-solving activity itself acts as a form of priming, while the experimenter's role is to detect the activation patterns within the semantic network that arise during the process. Lexical decision-making emerges as a straightforward experimental technique for this purpose.

The second purpose is to manipulate the activation of the semantic network and executive control structures experimentally, observing how these changes affect task-solving speed and accuracy under incubation and non-incubation conditions. Positive priming is understood as enhancing the activation of specific nodes in the semantic network, whereas negative priming introduces inhibitory control mechanisms.

This experimental framework generates distinct hypotheses depending on the incubation models under consideration. Conscious or unconscious work is expected to increase the activation of nodes relevant to the solution. Spontaneous cue assimilation should produce a similar effect but only in response to appropriate external signals. Attention withdrawal should result in decreased activation of irrelevant nodes. Finally, the awareness model predicts poorer performance under negative priming of solution-relevant nodes.

However, a critical question arises: how can we identify, for each triad, which nodes are relevant to the solution, which are irrelevant and misleading, and which are neutral and unrelated? Research into the structure of semantic networks offers a pathway to answering this question.

Semantic Networks and Complex Network Analysis

In recent years, network science and its associated approaches to analyzing complex systems have become an active interdisciplinary research field. Prominent examples include semantic networks, where concepts are linked through shared meanings [40]; social networks, where people are connected through relationships [33]; and neural networks, where neurons are connected via axons and dendrites [39].

Once nodes and connections are defined and the network is constructed, its topology can be studied using descriptive tools from network science [34]. For example, researchers can describe the global topology of a network, such as whether it resembles a small-world network or a random graph [63], or assess the position and significance of individual elements, such as node and edge centrality. Such analyses are often performed to link structural features of the network to the system's dynamics [35].

Network science serves as a productive theoretical and methodological foundation for under-

standing cognitive processes. Cognitive science and network science share complementary goals: cognitive science seeks to understand mental representations and processes [57], while network science provides tools to analyze the structure of complex systems and how this structure influences their dynamics [56].

Networks, particularly in the context of cognitive research, are valuable not only for accounting for the multidimensional architecture of complex systems [21] but also for offering tools to develop formal theories of dynamic processes that shape and sustain these systems [13, 14]. One notable example of this approach is the dynamical model of general intelligence [59], which explains positive correlations between intelligence test scores based on network concepts. This model quantitatively demonstrates how the structure of cognitive networks influences their dynamic processes. It has also been expanded to explain various empirical phenomena reported in intelligence research [42, 60].

An important and rapidly growing area within linguistic networks involves "word embedding." Word embedding is a set of language modeling techniques that map words to numerical vectors in multidimensional Euclidean space. Semantic similarity between two words is determined, in the simplest case, as the scalar product of their vectors, and more recently, using neural network algorithms. Recently, attempts have been made to treat semantic networks as multiplexes (i.e., multilayer networks). Such approaches appear to offer deeper insights into the formation of the mental lexicon [53] and early word acquisition [52].

Closely related to semantic networks are free association networks [15]. These are constructed through experiments in which participants are given words and asked to write the first word (or words) that come to mind in response. Aggregating these responses builds directed, weighted networks of connections between words (stimuli and responses), reflecting the frequency of associations.

The emergence of precise semantic network descriptions has allowed researchers to tackle the problem of verbal creativity as measured by Mednick's triads. Studies have demonstrated significant differences in the lexical-semantic and associative networks of more and less creative individuals. The networks of creative individuals are more interconnected, flexible, and reliable, supporting Mednick's hypothesis about creativity [27]. In another study [48], researchers analyzed sequences of guesses generated by participants during the RAT. Using latent semantic analysis (LSA), they measured the similarity between guesses, stimuli, and answers, concluding that there are two systematic strategies for solving linguistic tasks with multiple constraints, including the RAT. In the first strategy, guess generation is primarily based on one of the three stimuli, while the second strategy involves generating new guesses partially based on prior attempts.

Another study used a Metropolis-Hastings graph search model, where transition probabilities were based on geodesic (shortest) distances in the network from stimulus words to the solution [11]. The authors emphasized the critical influence of associative strength between key words on the outcomes of RAT performance.

A computational model was also developed, implemented, and analyzed to solve RAT tasks [36]. This model relied on a unified structure for organizing and processing knowledge ("knowledge graphs"), incorporating associative links between concepts and their frequency. Results showed that both the strength of associations and the number of potential pathways (graph paths) significantly influenced RAT success [37]. Finally, a spiking neural network model was proposed, simulating RAT solutions as a superposition of two cognitive processes: one generating potential answers and the other filtering them [26].

Today, there is a substantial body of work providing detailed insights into solving triads through semantic network analysis. These networks are often derived from associative experiments. However, it is important to note that reliable and complete network models currently exist predominantly for English and some other languages, but not for Russian. This limitation can be viewed as a temporary technical shortcoming that requires resolution.

Empirical validation is carried out by comparing the time and accuracy data of solving triads with model predictions. These predictions are based on the semantic network structure obtained through associative experiments and navigation algorithms simulating activation spreading from task conditions to solutions.

Studies have demonstrated a high level of prediction accuracy for Mednick's triads based on these models, justifying assumptions about activation pathways during problem-solving. This allows researchers to reliably identify target points for priming interventions and to test the activation patterns that form during task resolution.

How can we evaluate the precision of the description of Mednick's triad-solving processes obtained through this approach? The ultimate criterion of precision appears to be the ability to reproduce the process as a computer-implementable algorithm. The described modeling methods, with certain limitations, allow this for processes occurring within

semantic networks. However, these models currently do not account for individual differences and can only predict average behavior within a sample. For executive control structures, the precision is significantly lower and applies mainly to their interaction with the semantic network, specifically in areas where they allow certain network nodes to participate in the solution.

Conclusion

The analysis presented here highlights that modern cognitive psychology possesses the tools necessary to conduct precise studies of even highly complex phenomena, such as problem-solving and incubation. However, an enduring question remains: what is the relationship between general phenomena, such as incubation or insight, and the mechanisms underlying the resolution of specific tasks? This study has shown that it is possible to investigate complex phenomena (in this case, incubation) through detailed descriptions of processes (e.g., the solving RAT problems). Nevertheless, a crucial question arises: to what extent are the cognitive processes driving incubation consistent across different types of tasks? Addressing this question will require further, targeted research. Even so, it is possible to outline some initial avenues for variation.

It seems plausible that the interplay between dual processes — network activation and focused executive control — may explain incubation phenomena across a range of contexts and tasks. However, the relative importance of factors such as long-term activation spreading within the network, the resolution of activation stalling, or the relaxation of executive constraints is likely to vary depending on the nature of the task. Consequently, the mechanisms and degree of incubation may differ across tasks, reflecting the structural and procedural demands unique to each problem type.

Importantly, this does not preclude the existence of entirely different sources of incubation for other classes of tasks, sources that might not be identifiable through the analysis of Mednick's triads.

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Artistic Documentary in the Context of Cultural Dialogue and the Expression of a New Nature of Historical Self-knowledge

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Artistic documentary captures the lived experiences across different historical periods, highlighting representative events and significant episodes involving historical figures. While these accounts maintain their documentary foundation, the process of artistic transformation renders them distinct from the literal historical events and personalities they portray. This research examines the primary functions of artistic documentary within historical-cultural contexts, analyzing the portrayal of characters, thoughts, judgments, and emotional states through the lens of ontological philosophy. In this framework, artistic documentary serves as a medium for cultural dialogue about historical events and figures, their relationships, emotional dimensions, and behavioral patterns. Through this approach, authors convey cultural, psychological, and historical heritage in accordance with period-specific mentalities, employing distinctive logical frameworks and artistic expression. This methodology establishes a fundamental historiographic foundation for cultural dialogue between present and future generations, fostering spiritual connections among peoples and strengthening civilizational bonds. Documentary works, shaped by the temporal, spatial, and authorial contexts of their creation, reflect systematic relationships while emphasizing particular moods, personal qualities, thought patterns, and artistic imagery. In the current era of cultural interpenetration and transformation, artistic documentary merits further study, particularly regarding East-West cultural dialogue, linguistic-psychological analysis, and the interplay between cognitive processes and emotional states. The research methodology draws from memoirs, travel narratives, and essays by renowned writers. The study employs comparative and contrast methods to examine human-nature relationships, utilizing linguistic hermeneutics to analyze literary works and their original sources. Japanese scholarship on cultural dialogue and Eastern literary expression provides additional theoretical grounding. The analysis reveals that literary works across different cultures primarily aim to facilitate intercultural dialogue, foster mutual understanding, and promote convergence among peoples. They address the challenge of developing

universal thinking patterns for present and future generations while preserving both universal and national values, distinctive cognitive approaches, and stable emotional states—all contributing to humanity's broader mission on Earth.

Keywords: documentary, self-expression, universal values, emotional-existential states, literary heritage, artistic image, Kawabata's works, East-West dialogue culture.

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Художественная документалистика в условиях культурного диалога и выражение нового характера исторического самопознания

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Художественная документалистика отражает жизнедеятельность людей разных периодов, наиболее типичные события, существенные эпизоды, касающиеся действующих лиц, которые, хотя и не являются художественными по своему характеру, тем не менее, с точки зрения полного художественного преображения, не идентичны образу лиц и событию, которое произошло в действительности. Цель исследования — выявить основные функции художественной документалистики в историко-культурном контексте, как изменения вымышленных персонажей, мыслей, суждений, эмоциональ-

ных состояний, на платформе онтологичного познания. Художественная документалистика в данном случае — это культура диалога о событиях и лицах прошлого, их взаимоотношениях, эмоциональных состояниях и поведенческих особенностях, посредством которой автор передает культурное, психологическое и историческое наследие в соответствии с менталитетом, присущим данному периоду, с точки зрения своеобразной логики, художественного оформления культуры речи и служит фундаментальным историографическим подходом к диалогу культур нынешнего и будущих поколений, духовному сближению народов, углублению цивилизационных и дружеских связей. Художественная документалистика отражает существенные связи этого явления. На самом деле документалистика, обусловленная индивидуальными особенностями времени, места, автора, в той или иной степени отражает закономерные связи, отдавая предпочтение тому или иному эпизоду настроений, личностных качеств, образа мышления, выбора художественных образов. Тем не менее, в современных условиях взаимопроникновения и трансформации культур, художественная документалистика, наряду с ее функциями, нуждается в дальнейшем изучении в контексте диалога культур Востока и Запада, лингвопсихологического анализа, взаимодействия психических процессов и эмоциональных состояний. Методологической основой исследования послужили мемуары, рассказы о путешествиях, очерки известных писателей. Для исследования использовались сравнительный и сопоставительный методы изучения связи «человек—природа—природные явления», литературные произведения или образцы их оригиналов рассматривались с помощью языковой герменевтики. В связи с этим также рассматривались исследования японских ученых, посвященные диалогу культур народов и проявлениям Восточного литературного образа. Таким образом, в результате анализа мы пришли к выводу, что культурный образ литературных произведений разных народов направлен главным образом на диалог народов, взаимопонимание, их сближение, формирование универсального образа мышления, ориентированного на нынешние и будущие поколения, обладающие разными культурами, сохраняющие общечеловеческие и национальные ценности, самобытный образ мышления и эмоциональные устойчивые состояния в функционировании человека как миссии бытия человека на планете Земля.

Ключевые слова: художественная документалистика, средства выражения «Я», общечеловеческие ценности, эмоционально-экзистенциальные состояния, литературное наследие, художественный образ, творчество Кавабаты, культура диалога «Восток—Запад».

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Introduction

Artistic documentary represents a unique genre that bridges factual documentation and creative expression. While not purely artistic, it transforms historical events through the creator's subjective interpretation, engaging with cultural dialogue, universal human values, and the nuanced portrayal of characters across various contexts.

The definition of artistic documentary remains subject to scholarly debate, yet practitioners agree on its essential nature: rather than merely documenting the past, it actively brings historical events into contemporary discourse. This approach strengthens scientific heritage and preserves cultural diversity across academic disciplines and educational contexts. Such works carry significant psychological impact, with a humanistic orientation toward civilized society, lifestyle interpretation, natural phenomena recognition, event prediction, and the cultivation of positive life impulses.

In literary works, authors craft narratives with predetermined ideas, character development, and emotional trajectories. Conversely, memoirists construct their narratives from historical facts and events, specifically aiming to foster cross-cultural dialogue. The hallmark of memoir writing lies in its artistic interpretation of past realities — events and interpersonal relationships rendered through creative language that reflects the author's perspective while serving the cultural development of current and future generations.

Literature Review

Documentarians differ fundamentally from fiction writers in their approach to character creation. While fiction writers have creative freedom in developing characters [2], documentarians must work with real individuals and experiences, creating portraits that serve as direct representations of actual phenomena and realities. They can only portray people directly connected to their experience, capturing original feelings and behaviors as they were observed in specific situations. As V. Belinsky notes regarding documentary authors: "he deals not with imagined types, but with people and faces whom he knew, in the environment in which he lived and spent his days" [2, p. 154].

The Armenian classic writer S.V. Zoryan observes that "absolute objectivity and subjective approach undoubtedly occupy a significant place in memoirs" [36, p. 7], highlighting the inherently subjective nature of

documentary writing. V. Saroyan further elaborates that memoirs capture what a person remembers, feels, or imagines at a given moment — experiences that cannot be fully identical to actual events, since many aspects remain inaccessible to sensory perception or fail to transform into emotional states like joy, sympathy, or sorrow [31, p. 396; 34; 35].

The memoirist's perspective is inherently limited by personal perception, making it impossible to encompass all connections between events and phenomena. What matters is how authors examine reality, process factual materials, and assess cultural values through their worldview. Modern linguistic scholarship prioritizes studying the psycholinguistic foundations of artistic documentary literature, focusing on how individuals express themselves linguistically [9, pp. 112-116].

A documentary artist develops relationships between literary characters and historical events by addressing specific past situations they witnessed, involving people from different cultures and displaying both individual and social behavioral traits. This requires a minimum threshold of mental activity for linguistic comprehension, below which it becomes impossible to semantically express perceptions, feelings, and thoughts [3].

Documentary expression employs specific verbal structures as knowledge frameworks, including cognitive expressions ("I caught what he said", "I understood", "He thought"), emotional states ("He was sad", "He was angry", "He was happy when he saw the girl"), and action-based descriptions ("to take", "to bring", "to speak", "to walk across the room") [19].

These expressions transfer into the dialogical field, where civilizational and communicative connections between peoples emerge [1]. Artistic documentary functions as a means of influence through both "understanding-realization" and the chain of speech-person-speech. According to Belyanin, this parallelism of perception and realization is particularly evident in memoir prose through dialogues [3].

In this form of communication, the documentary writer reflects on life situations, personal experiences, and emotions, observing connections between mood, personality traits, and thought patterns. They engage in open, frank dialogue with readers [5], distinctly different from casual conversation. V. Volkenshtein [5] frames this open dialogue within the context of cultural rapprochement and friendship between peoples. The goal extends beyond creating like-minded readers to fostering active participants in the narrative. As Jean-Paul Sartre notes, both author and reader share responsibility, since "the world rests on the joint efforts of these two" [12].

The cultural scope of artistic documentary encompasses both author and reader, establishing identity and self-expression through verbal communication. The memorized and reproduced material undergoes qualitative changes, including the development of an idealized self-image that connects past, present, and future. As S. Kaputikyan reflects: "Let the reader forgive me if in the book he often encounters declensions of the first-person pronouns: I, me, my, etc.... any passage of my story will inevitably sound like self-praise... because, by the circumstances, events and meetings developed around me, as an invited one from my homeland" [23, p. 12].

Memoirists often attempt to reproduce unrealized desires, dominant emotional experiences, and transitions between reality and imagination through others' emotions and actions. The real "I" frequently differs from the thinking, rational "I", marked by an ideal "I" that activates elevated ideals. They employ mood-defining words and expressions, focusing on life's emotional aspects through figurative language and carefully chosen landscapes.

Literary scholar L. Ginzburg observes that memoirs reveal psychological insights that later form the foundation for psychological prose, emphasizing intergenre connections [7, p. 76]. The writing of memoirs, travel notes, and diaries involves complex thought processes, requiring preservation of content, sequence, and causal relationships. These works must be both sincere and convincing, transforming into guiding principles. Even when authors weren't direct participants in events, they present incidents as reported by others, adding discoveries that satisfy life's needs and professional activities. This is evident in the vivid, pictorial memory found in works by artists like P. Terlemezyan [32], [28], Arshile Gorky [20], V. Arutyunyan [21], and linguist A. Sargsyan [30].

The process of artistic documentary writing emphasizes descriptive language elements as communication culture. Since the 8th century AD, European spoken language has recognized various descriptive forms: full description, partial description, location and external characteristics, and inner core description. Masters of artistic-documentary speech approach original descriptions through multiple angles: portraits, landscapes, and events, presented either intermittently or continuously, considering both purpose and author participation.

Psycholinguistics examines reality construction through narrative, influenced by subjective factors studied in 1950s-1960s art and literature across France, Germany, and Japan. While J. Piaget [11] viewed mental development as spontaneous, subsequent research by J. Bruner [4], L.S. Vygotsky [6], A.N. Leontiev [9], V.V. Davidov [8], and others demonstrated how learning leads to development through relevant activities, influenced by life experience, social environment, and biological factors [24], [25], [26], [27], [17].

The practice extends to autobiography, exemplified by H. Tumanyan's [33] systematic organization of life facts into key plot sections. Beyond its narrative function, memoir writing serves a therapeutic purpose, as demonstrated by V. Alazan's [16] experience of healing through writing. This therapeutic value helps writers clarify their thoughts, understand reality better, and establish boundaries of action, creating bridges between past experiences and future generations.

Psycholinguistics as a Method of Interpreting the Works of Yasunari Kawabata

Yasunari Kawabata, the distinguished Japanese writer and Nobel laureate, embodies in his works the funda-

mental ideological and aesthetic principles of Japanese literature. His contributions are particularly significant because translated literature serves as a bridge between nations, facilitating cultural exchange and intellectual development while promoting mutual understanding and recognition of spiritual and moral values.

While deeply rooted in Japanese literary and philosophical traditions, Kawabata's work maintains the foundations of national epistemology and psychology while skillfully incorporating modern European literary techniques. This synthesis introduced understated expression into Japanese literature while preserving traditional suggestive elements. His writing is grounded in historical, ethnoreligious, and socio-psychological foundations that strengthen Japanese philosophy and art, yet distinctly reflects his personal worldview and complex biography.

Kawabata's life trajectory profoundly influenced his literary vision. Orphaned early and raised by his grandparents, he developed an intimate relationship with themes of death and solitude. His natural quietness deepened into silence following the loss of his grandfather at age sixteen, when guardianship transferred to a distant relative. These experiences of profound solitude and abandonment found their first expression in his 1914 autobiography, "The Sixteen-Year-Old Diary," published in 1925. This work chronicles the fourteen days preceding his grandfather's death, combining mature modernist style with authentic teenage emotional expression.

As Kawabata himself reflected: "From an early age, I was destined for orphanhood, but people surrounded me with care, and I became one of those who cannot cause pain or hate others" [15, p. 28]. His works, including "The Dancer from Izu", "Thousand Cranes" [13] and "The Sound of the Mountain" [25], create a distinctive metalanguage that exemplifies intercultural communication and civilizational interactions through the lens of linguistic psychology.

A Discussion of Life and Death in the Autobiographical Works of Yasunari Kawabata: At the Intersection of East and West

While Yasunari Kawabata did not write conventional autobiographies, his entire literary corpus is deeply autobiographical, consistently exploring themes of solitude, death, and suicide. These themes emerge not only from his personal experiences but also from Eastern philosophical traditions and distinctive biophilosophical perspectives. Following Kawabata's own suicide, Ashot Gabrielian's research [18] examines the psychological and philosophical underpinnings of his worldview: "I am struck by the fact that death causes such horror among Europeans. Their only desire is to live. They are afraid not only to speak but even to think about death".

Kawabata notes that European culture's singular focus on life stands in stark contrast to Japanese perspectives, where death holds greater significance than life itself. The Bushido spirit, embodying the warrior's readiness for death, remains deeply embedded in Japanese culture. The maxim "Every morning, think about how to die. Every night, refresh your mind with thoughts of death. And let it always be so" [14] forms a foundational principle in Eastern approaches to human relationships and worldview—an axiom that transcends emotional attachment and personal ego, emphasizing the concept of the "Man without 'I'".

In Kawabata's work, death and suicide create a unique aesthetic, forming a metalanguage that portrays impermanence and transience in both subtle and stark tones. His early novellas emphasized external events and collective experiences, such as the generational trauma of war. However, his later shorter works—which often drew from autobiographical sources—turned inward, focusing on intimate personal experiences. These narratives notably lack dramatic climaxes, instead presenting events with a peaceful harmony that reflects the author's psychological reconciliation with mortality. This distinctive style, first emerging in "The Dancer from Izu" (1925), reached its culmination in his 1968 Nobel Prize speech [29].

Kawabata's Nobel address particularly illuminates his biographical trajectory and philosophical system. He discusses not only East-West cultural intersections and literature but also the psychological framework for understanding suicide as a potential resolution. Through the Buddhist lens, this represents a cyclical transition between states, marked by moments of divine enlightenment—explaining the tranquil quality of his writing.

The address references Ryokan's observation that "Kawabata would leave nothing behind" except untouched nature, reflecting ancestral wisdom and religious spirit [15]. It also cites Akutagawa Ryunosuke's final letter before his suicide: "The thought of suicide haunts me. But now, nature has never seemed so beautiful to me... because it reflects my last glance" [18]. Through these references, Kawabata explores the intersection of Eastern and Western perspectives on life and death, ultimately embracing the Japanese concept of 'Emptiness' ('Ango'), where different experiences paint the soul like colors on sky, leaving no permanent traces [18].

Conclusions

Based on our research findings, artistic documentary emerges as a complex and multifaceted genre that serves multiple functions across cultural, psychological, and literary dimensions. The following key aspects highlight its significance in modern literary and cultural studies:

1. Interdisciplinary Significance

- Functions as a subject of multi-conceptual research
- Creates vivid narratives in artistic terms
- Combines thoughts, judgments, and emotional expressions psychologically
- Promotes philosophical reflection on life's wisdom across time

2. Cultural Bridge Function

- Amplifies psychological impact through East-West dialogue
- Transmits historical and cultural heritage to future generations

• Serves as both present documentation and historical reflection
• Addresses contemporary and future cultural discourse

3. Individual and Creative Impact
• Preserves mental images and emotional experiences
• Captures behavioral shifts and personal transformations
• Engages readers in sensory and emotional experiences
• Provides therapeutic benefits through narrative engagement

4. Cross-Cultural Significance
• Fosters dialogue between different nations
• Promotes mutual understanding and cultural rapprochement
• Contributes to universal human mentality formation
• Preserves distinct national values and cultural identities

5. Linguistic and Stylistic Elements
• Develops unique traditions in language and metalanguage
• Creates distinctive, unmistakable stylistic approaches
• Reflects cultural-historical continuity
• Facilitates psychological construction of meaning

6. Long-term Cultural Impact
• Enables ongoing dialogue between peoples
• Creates opportunities for mutual understanding
• Bridges diverse worldviews
• Nurtures universal thinking patterns and stable emotional experiences

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DEVELOPMENTAL PSYCHOLOGY
ПСИХОЛОГИЯ РАЗВИТИЯ

What do Parents of Homeschoolers Do to Improve the Well-being of their Children (Based on SDT-approach)

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This paper focuses on the practices that parents of homeschoolers use to support their children's well-being during the learning process. According to Self-Determination Theory (SDT), practices related to satisfying basic psychological needs (autonomy, competence, affiliation) and supporting intrinsic motivation can be considered as practices to improve the level of well-being. We used the database that was created by analyses of 39 interviews with homeschoolers' parents. The authors conclude that parents consider autonomy and intrinsic motivation to be the main focus of their attention. Parents also pay attention to satisfying the other two basic psychological needs: competence and affiliation.

Keywords: home-schooling, student well-being, parents, well-being support practices, qualitative research, self-determination theory.

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Как родители, выбравшие семейную форму обучения, заботятся о благополучии своих детей

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В статье описаны практики поддержки благополучия, которые используют родители, выбравшие семейную форму образования для своих детей. В соответствии с теорией самодетерминации к таким практикам отнесены те, которые связаны с удовлетворением базовых психологических потребностей

в автономии, компетентности, причастности и поддержкой внутренней мотивации. Для выявления и анализа практик были использованы 39 интервью родителей о том, как они организуют обучение своих детей. Авторы делают вывод, что для родителей наиболее важной является поддержка автономии и внутренней мотивация детей, именно это становится предметом их заботы при организации обучения. Родители уделяют внимание и удовлетворению двух других базовых психологических потребностей: компетентности и причастности.

Ключевые слова: семейное образование, школа, благополучие учеников, практики поддержания благополучия, качественное исследование, теория самодетерминации.

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Introduction

Student well-being in educational settings is a significant concern for contemporary educators [6] both in Russia [3; 10; 11] and internationally [17; 24]. The idea that the educational process is as meaningful as its outcomes is a product of the so-called "therapeutic turn" [18]. Given that negative experiences can adversely affect mental health, it is reasonable to establish a therapeutic organizational environment proactively [26]. Research indicates that psychological well-being during childhood is associated with future well-being [20], future wealth and success [15], and that employees who are satisfied with their lives tend to be more productive [12].

This suggests that parents are also concerned about their children's well-being within educational contexts. The experiences of parents of homeschooled children [4; 8] warrant investigation, as they may be particularly attuned to issues regarding their children's well-being. Among the reasons parents opt for homeschooling are the flexibility of scheduling, the ability to tailor learning to individual characteristics, the reduction of psychological and social risks, and the enhancement of family dynamics [1]. Some of these motivations can be framed as concerns for well-being [5].

Self-Determination Theory (SDT) provides a framework for understanding how to support student well-being. According to this theory, well-being is influenced by the satisfaction of three fundamental psychological needs: autonomy, competence, and relatedness [23].

The need for autonomy pertains to the desire to self-manage one's life. Actions that promote autonomy include adults explaining their decisions, allowing children to express objections [21], and fostering self-awareness, among others [22]. Conversely, manipulative practices (e.g., presenting choices when none genuinely exist) undermine the need for autonomy [16].

The need for competence involves possessing the necessary skills and knowledge to navigate life's challenges. Competence is fostered through a clearly structured learning process, a visual system for monitoring progress [25], opportunities for success, chances to experiment, and positive attitudes towards mistakes [19].

The need for belonging encompasses the desire to care for others and to receive care in return. To fulfill this need, it is essential to establish a welcoming and accepting social environment, as well as to ensure the sensitivity and availability of adults [19; 25].

A central concept of Self-Determination Theory (SDT) is intrinsic motivation, defined as the desire to engage in activities out of interest, for the pleasure they provide, or because they align with personal goals and values. Strategies to sustain intrinsic motivation include leveraging students' interests and allowing them to influence the learning process [21].

SDT shares several intersections with cultural-historical theory. The concept of basic psychological needs is grounded in the understanding that development occurs through interaction with others (the need for belonging), facilitated by a more experienced individual who provides accessible cultural tools to address specific situations (the need for competence). At the core of Self-Determination Theory is the principle of active, independent initiative (the need for autonomy and intrinsic motivation), which aligns closely with Vygotsky's ideas. However, SDT offers a significant enhancement by asserting that the satisfaction of basic psychological needs not only serves as the foundation for harmonious development but also acts as a prerequisite for individual flourishing [23].

It is important to note that this study is part of a larger project aimed at investigating well-being practices in educational settings. In this study, the authors seek to explore practices employed within alternative education systems, while subsequent studies will concentrate on practices utilized in traditional schools.

Methods and data

The study utilized the database from the project "Choice of Alternative Education in Russia: Motives and Social Characteristics of Families" [5], which comprises 3,451 quotations extracted from 39 interviews with parents of homeschoolers, categorized thematically (see Table 1). Quotes from each thematic category were selected sequentially for coding, and each quote was subsequently re-coded according to four thematic categories: autonomy, competence, belonging, and intrinsic motivation.

Information regarding the sample and research procedure was derived from the project's internal report. Initially, interviews were conducted with 40 families; however, one interview was excluded due to its focus on the education system of another country. Five families have resided outside the Russian Federation for an extended period, yet their children continue to study under the Russian Federation program. Meanwhile, 34 families are situated in Russian settlements of varying population sizes (see Table 2).

The report highlights the diverse educational backgrounds and approaches of parents involved in homeschooling. While specific data on parents' education levels were not provided, many indicated they possess higher education, often in pedagogical or psychological fields, and some pursued this education specifically to better support their children's learning.

Parents frequently engage in ongoing training and self-education, reflecting a commitment to enhancing their teaching skills. Many work freelance or in creative roles, allowing them the flexibility to supervise their children's education at home.

The sample includes families with varied experiences in public schooling; 20 families reported at least one child who had attended public school, while 19 families chose homeschooling from the outset. In some cases, families have a mix of homeschoolers and children attending traditional schools based on individual preferences.

The interviews primarily focused on children of school age, resulting in insights about 66 children — 31 girls and 35 boys—spanning both primary (2nd—4th grade) and secondary (5th-7th grade) education levels.

Homeschooling methods varied widely, including direct parental instruction, tutoring, online schooling, family schools, and alternative education programs. This variety illustrates the flexible and personalized nature of homeschooling practices among these families.

Results

The coding resulted in the identification of 1591 meaningful units (Table 3)

Table 1

Structure of the database used in the study

Category	Number of meaningful units
Results, meaning for the future	536
Organizational issues	452
Adapted to individual traits	375
Student-Teacher relationships	320
Possibility to choose the learning activities	310
Peer-relationships	306
Support interest and desire to learn	289
Sense of pleasure, psychological comfort	249
Development of students' abilities	237
Academic results	208
Safety, health, other	169
Overall	3451

Table 2

Population of families' living place

Population of living place	Number of families
City with a population of one million	15
City with population from 100 thousand to 1 million	10
City with population less than 100 thousand	3
Village, settlement	6
Residents from other countries whose children are studying at Russian school on distant or part-time education program	5
Overall	39

Table 3

Dictionary of codes and distribution of semantic units

Category	Key words	Example	Meaningful units	
			N	%
Intrinsic motivation	Supporting the desire to learn, interest	What is the point of his learning if he does not see the purpose of his learning? It is better when it is for his own benefit and interest	460	28,9
Competence	Developing the child's skills, abilities, talents.	*It is important to understand how you can get knowledge effectively and what to do with it afterwards.*	411	25,8
Relatedness	Maintaining good relations of the child with family, teachers, or peers.	*We have the most wonderful teacher there. My daughter was inspired, she adored her.*	396	24,9
Autonomy	Supporting the child's desires, decisions, ideas, and developing awareness.	*Also the ability to hear and understand yourself, what you want, that's also important*	324	20,4
Overall			1591	100

Autonomy support

Respondents emphasized the importance of considering the child's opinions and interests.

"We [make decisions based] on the children's needs, not on what we want to see in our children. We look at what interests there are, strengths, what [the son] is striving for". This approach aims to teach children self-understanding: *"When I finished school, I didn't know what to do because it was always [decided] by somebody else. It took a lot of effort to realize what I wanted. [Now I want] the child [to be] an individual who can make such a decision by himself"*.

According to respondents, an excessive level of autonomy places undue strain on the child. *He does not have enough responsibility; he often forgets that some consequences can be bad. It is too early to let it go at all"*. However, it is essential to explain these limitations: *"We limit you a little bit because we love you. We want [you] to be mentally and physically healthy"*.

Respondents attempt to allow their children to choose certain activities, such as hobbies, clubs, and extracurricular programs. *"We don't force anyone to go anywhere; he/she can choose and go to some club. In [studies], they force themselves and get tired of it"*. Conversely, some parents prioritize their children's desires above all else: *"...Only without coercion can a child study. [Otherwise]...there will be no benefit"*. Others express skepticism regarding this approach, arguing that it fails to foster responsibility, perseverance, and resilience. *"[Left school because there was] such freedom—freedom when children feel that the whole world is around them and everything is as they want; the subordination of children to adults was broken. Wanting is blown out of proportion, and boundaries aren't built. This is not exactly what one would like to receive in an educational institution"*.

Some parents pay lip service to the concept of autonomy while still expecting obedience from their children. They invoke the child's autonomy to mitigate conflict and circumvent resistance. *"Sometimes it is necessary to lead children to the realization that they need it themselves, to somehow present that they need it, not me. Maybe by some kind of trickery". "If parents and teachers could find ways to impose requirements without the child realizing they are being forced... it would be ideal"*

The degree of autonomy granted to children within the same family can vary significantly; parents may adapt their educational approaches for one child while demanding obedience from another. *"I can step back from my principles; [my son] can be allowed not to do something, and I can stop pushing immediately. With my daughter, I sometimes have to give ultimatums.*

Intrinsic motivation support

Intrinsic motivation is a critical component of the learning process for respondents, who desire that their children engage in studies consciously and with genuine interest. *"I do not want my child to say 'I don't want to study, I don't want to learn, what the hell is it worth, stupid lessons'. At school age, a child should be taught to love learning in general... because one is learning all life. If the child does not lose this passion, if he/she understands that it is interesting — this is the most important thing"*. To support this motivation, parents elucidate the significance of learning, demonstrate how knowledge can be beneficial in daily life, and select textbooks that present material in a lively and engaging manner.

Parents often employ trial-and-error methods to create situations in which their children can achieve success. It is imperative for them that learning time is utilized productively and that their children feel comfortable during this process. However, they contend that simplification of educational content is not always necessary; rather, they believe that sometimes children may be unable to realize their potential in school due to the material being overly simplistic.*"He knew much more about some subjects than he could be given. He just sat and counted crows"*.

When children cannot find subjects within the school curriculum that align with their interests—such as coding, chess, sports, or arts—parents strive to provide opportunities for engagement in these activities. *"If you become interested, then go ahead, try yourself. It is not necessary for the child to be torn between learning and interesting activities. There is a lot of interesting things behind the main curriculum. If you are interested, go on, and immerse yourself in doing it"*.

Many parents hold the belief that children naturally enjoy learning. Even when faced with boredom, children are generally able to overcome such feelings, and persistent reluctance or resistance to learning may indicate underlying issues. These issues could include excessive workload, insufficient time for personal interests or rest, neglect of the child's preferences, or distracting factors such as overcrowded classrooms, noise, or negative interactions with teachers or peers.

Concurrently, parents acknowledge that not all educational activities can rely solely on intrinsic motivation. *"He finished seventh grade in March and immediately started eighth grade, because he is motivated to finish this school as soon as possible so that we do not bother him with it anymore. This is because he is interested in completely different things. And [school] is just an obligation for him"*. Respondents recognize that motivation to learn does not manifest instantaneously; to sustain this motivation, it is crucial for children to experience success in specific areas, understand the relevance of activities, and have the autonomy to select pursuits based on their interests. Even when a child enjoys an activity and demonstrates proficiency, parents may still need to supervise the routine practice of skills, such as consistent practice of a musical instrument or solving chess problems.

Satisfying the need for competence

Parents place significant emphasis on the development of competencies in their children. They believe that homeschooling facilitates a more efficient allocation of time dedicated to studies. Many parents express the view that educational institutions should adequately prepare their children for future life; however, they perceive that contemporary schools are not entirely fulfilling this role. *"I think it's unlikely that the curriculum has changed very much, while the world is changing rapidly and what it will require of our children when they become adults is very difficult to say"*. Among the essential skills identified by parents are the development of social-emotional competencies (such as the absence of fear in making mistakes, effective communication skills, and emotional awareness), critical thinking, information technology (IT) literacy, financial literacy, and the ability to maintain a healthy lifestyle. Additionally, some parents highlight the importance of spiritual development—such as faith in God *("I would like them to rely on God")* or karma *("It is more important that the child understands why this situation has come to you by fate")* — and the instillation of specific values *("To be grateful, to be able to notice good things"*), alongside sex education and relationship-building skills.

Parents regard the ability to learn, set goals, plan one's work, comprehend personal aspirations, and leverage individual strengths as crucial components of success. *"Some freedom in choosing an educational path is necessary. Maybe it will help [my son] with his choice of profession, he will understand his strengths, where it will be good, interesting and useful for society to work"*

They tend to offer their children a broader range of subject areas, particularly when a child exhibits exceptional talents in activities such as professional chess playing, music, programming, drawing, or sports. *"He is the chess champion of Tatarstan, so he is serious about it", "[The child] is on a course where... they are just learning how to create [online] games"*.

While parents acknowledge the importance of the standard curriculum, they strive to organize educational experiences in a manner that allows sufficient time for mastering the school curriculum while simultaneously pursuing their children's interests. *"Quality education can be given in much less time*". Parents also indicate that homeschooling provides them with greater opportunities to monitor their child's progress, tailor learning to their child's unique characteristics, and achieve improved outcomes. *"In the lesson, what the whole class did... — one threw erasers, others fought, these are this, these are that". "[My daughter] was not asked for two months; then it turned out that she did not understand. [At home], in 15 minutes, it became evident that she did"*.

Satisfying the need of relatedness

Parents frequently addressed the topic of relationships in their responses, discussing dynamics within the family, as well as interactions with friends and teachers. They noted that academic pressures can sometimes lead to conflicts between children and parents; additionally, teachers may expect parents to align with them, yet not all parents are willing to prioritize this allegiance, often choosing instead to maintain their relationships with their children. *"The priority of relations has become obvious. What matters is not how much your child knows, but what kind of relationship you have with him/her. Everything else is does not matter"*.

Some parents indicated that homeschooling enables children to spend more time at home, participate in family life, and acquire household skills. According to the respondents, family vacations, social gatherings, and engaging trips can facilitate children's socialization just as effectively as traditional schooling. *"Children help parents when they are at home. They know how to communicate with younger children..., they know how to cook, they know*

how to clean, they know how to do everything. They have an opportunity to live this simple, real life". "Even within the framework of our family we can solve the problem of communication, they have someone to be friends with, there is someone to communicate with on a regular basis", "She sometimes has a choice to go to an activity with her friends, and I see that she gets there more skills than at school: chatting with friends, affiliation with others".

Parents endeavor to select educators who foster respectful relationships with their children. *"After [the lesson] I would ask my child: "How do you like the teacher?' Then I would ask the teacher: 'How do you like the child?'. We have now formed such a set of teachers with whom everything has meshed".* The respondents emphasized that any breach of respectful conduct by a teacher—such as shouting or making rude remarks — is unacceptable. They strive to shield their children from such negative experiences or, if such incidents occur, to provide new, positive interactions. *"The thing I disliked most at my school was being shouted at. [Now] I can't even imagine that any of the teachers will start shouting at my child".*

Parents acknowledge the importance of friendships during childhood and adolescence. They actively influence their children's social circles, seeking environments that align with both their children's preferences and their own values. *"Sometimes peers are antisocial, [they] don't have enough moral principles. That is why you must keep an eye on your environment, it has a very big influence".*

In their view, socialization is not merely about adapting to a collective that one did not choose but rather about finding like-minded individuals who share similar values. Although a classroom may contain many students, children do not always succeed in forming friendships within that setting; they often find it easier to connect in extracurricular activities. *"At school, this society is imposed. Where they put you, you must be kind and get used to them. At homeschooling you choose with whom to communicate, with whom not to communicate".*

Interestingly, some parents perceive the high student-to-teacher ratio in classrooms as a barrier to developing friendships at school. Certain children may struggle in large groups and quickly become fatigued by social interactions. Moreover, some school events intended to promote socialization can have the opposite effect; parents have observed that these events are often organized on too large a scale, causing some children to feel overwhelmed, withdraw, and avoid interaction. *"The first of September was such a pompous event; it was done in the form of a game based on Harry Potter. They rented a huge restaurant with all sorts of quests, a huge crowd of these kids: first, second, third class — all together. My son watched all this fearfully, did not participate in anything, and relaxed only when it was all over".* Parents strive to facilitate opportunities for their children to engage with peers of the same gender.

Discussion

In the cultural-psychological approach, the adult's role is to guide the child within the zone of proximal development—both intellectually and psychologically [9]. In fulfilling this role, parents of homeschooled children support their offspring not only in mastering cognitive skills but also in fostering autonomy. They regard the promotion of autonomy as a prerequisite for future success, a notion substantiated by research [13]. Consequently, these parents consistently encourage the development of autonomy in their children.

Parents allocate both time and financial resources to ensure that their children can select activities aligned with their interests and utilize a diverse array of educational resources, including those external to traditional schooling. This trend aligns with findings from scientific research [7].

According to parents, the development of competence is crucial for future success and well-being; this perspective coincides with the academic outcomes emphasized by state curricula [14]. However, contemporary parents appear reluctant to rely solely on formal schooling. While they acknowledge the significance of school subjects, they adopt a broader view of education, striving to incorporate the development of social-emotional skills and personal characteristics. A similar inclination is observed among parents within the traditional education system [2].

Regarding relatedness, parents highlighted relationships within the family, with teachers, and with peers. It is essential for parents that all three spheres are conducive; however, their observations suggest that it is not always feasible to harmonize these relationships within the school environment. Consequently, parents endeavor to construct a relational system from various components — such as identifying a competent tutor, establishing a circle of friends with shared interests, and fostering communication within the family.

A limitation of this study is its qualitative methodology; thus, quantitative research is necessary to generalize the findings. It is important to note that the authors did not measure the actual well-being of children in families utilizing homeschooling; therefore, no conclusions regarding the effectiveness of specific practices can be drawn.

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Attitude of 5 and 6 Years Old Preschoolers to Cartoon Characters

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This work is devoted to the study of the peculiarities of attitude of 5- and 6-year-old preschoolers towards cartoon characters. Hypothesis: There are significant changes in the child's attitude towards cartoon characters, which is manifested both in an increase in the use of his subjective personal assessments of heroes and in a change in the correlations between different personal assessments of characters. Sample: 60 children from 5 to 7 years old (30 girls) we recruited for this study. The 1971 Soviet cartoon "Old Toy" was used as the research material. The study included watching the cartoon by each child. Then he/she was offered a modified method of personal constructs by J. Kelly. The results showed that there are differences in the attitude towards the characters. Six-year-olds use subjective personal constructs more often than objective ones and more often rely on the relationships of the characters. In addition, the structure of the interrelationships of subjective personal constructs differs in five- and six-year-olds. 6-year-old children correlateethical assessments with the actions of the characters, while children of five years evaluate the ethics of the characters according to their characteristics. The results allow us to draw general conclusions about age differences towards cartoon characters in children aged five and six years.

Keywords: cartoons, cartoon characters, personal constructs, preschooler's attitude, perception of cartoons, understanding of cartoons, preschool age.

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Особенности отношения дошкольников 5 и 6 лет к персонажам мультфильма

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Настоящая работа посвящена изучению особенностей отношения дошкольников от 5 до 7 лет к персонажам мультфильма. Гипотеза: с возрастом происходят существенные изменения в отношении ребенка к персонажам мультфильма, что проявляется как в увеличении использования детьми субъективных личностных оценок героев, так и в изменении структурных взаимосвязей между различными по своему содержанию личностными оценками персонажей у детей 5 лет и 6 лет. Выборка составила 60 детей от 5 до 7 лет: первая группа, условно 5 лет — 30 детей (M = 65,6 мес., SD = 2,98); вторая группа, условно 6 лет (M = 79,0 мес., SD = 4,04). В качестве материала исследования был использован мультфильм «Старая игрушка» (1971). Исследование включало просмотр данного мультфильма ребенком, после которого ему предлагалась модифицированная методика личностных конструктов Дж. Келли. Результаты показали, что существуют различия в отношении к персонажам у детей 5 и 6 лет. Шестилетние дети используют субъективные личностные конструкты чаще, чем объективные, и чаще опираются на взаимоотношения героев, обосновывая свои оценки. Кроме того, структура взаимосвязей субъективных личностных конструктов различается у пяти- и шестилетних детей: для последних характерна связь этических оценок с действиями героев, в то время как дети пяти лет оценивают этичность персонажей в связи с их характеристиками. Полученные результаты позволяют сделать общие выводы о возрастных различиях в отношении к персонажам мультфильма у детей 5 и 6 лет.

Ключевые слова: мультфильмы, персонажи мультфильма, личностные конструкты, отношение дошкольника, восприятие мультфильмов, понимание мультфильмов, дошкольный возраст.

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Introduction

The sociocultural environment of contemporary children is deeply influenced by pervasive media exposure. Studies indicate that children, on average, spend approximately 2.5 hours daily watching entertainment content, with cartoons comprising the majority of this viewing time [18; 26]. While much recent research on cartoons highlights their educational potential [23; 24; 28] and their ability to influence children's behavior [30; 33], there is limited exploration of how children perceive films and relate to cartoon characters, particularly within the preschool demographic.

Nevertheless, age-specific perceptions and attitudes toward films can serve as effective foundations for educational development [16]. Immersive engagement with art is known to prompt an internal restructuring of experiences for both children and adults [4; 5; 9; 11; 12; 20]. In this context, cartoons significantly shape children's worldviews and contribute to their understanding of personal experiences. This effect arises largely because young viewers often relate on-screen events, characters, and actions to their own lives [25; 27; 29; 30; 31; 33; 34]. However, due to the limited continuity in their perceptual abilities, preschoolers may find it challenging to establish emotional and meaningful connections with the film's space [19]. Accumulated exposure to artistic

experiences, coupled with *character engagement* and self-referential connections, aids children in navigating the film's narrative and developing aesthetic appreciation [3; 6]. Through engagement, the child is "included" in the narrative world, forming attachments to its characters. In A.A. Tarkovsky's words, the child enters the author's "flow of time" [32].

Notably, a viewer's perspective significantly influences their attitudes toward film characters [8]. For instance, studies on the formation of meaning in fiction perception, particularly those led by V.S. Sobkin, suggest that adopting a character's internal viewpoint enables viewers to examine the ethical and moral dimensions within character relationships [14; 15]. Moreover, research led by E.O. Smirnova has shown that understanding cartoons stimulates children's imagination, preparing them for subsequent role play [13], which is crucial in the preschool years.

The present study builds upon these insights, *aiming* to identify specific attitudes that preschoolers aged 5 and 6 hold toward cartoon characters.

Hypothesis: With age, significant changes occur in children's attitudes toward cartoon characters, manifested in increased use of subjective personal evaluations and shifts in the structural relationships between these evaluations, as evidenced in 5- and 6-year-olds.

Materials

The cartoon "The Old Toy" (1971; duration: 9:42) was used as exposition material. Script by V. Livanov, directed by V. Samsonov.

A detailed analysis of this cartoon's artistic features, examining both internal and external viewpoints (M.M. Bakhtin; Yu.Yu. Lotman; P.D. Uspensky), shows that the structural features of the film's narrative invites viewers to identify objectively with the Girl (external viewpoint) and subjectively with the Teddy Bear (internal viewpoint) [14; 15].

Method

Methodology. The study employed a modified version of J. Kelly's personal construct methodology, which aims to investigate the meaningful units for ascertaining the similarities and differences between objects [7]. This adapted approach in relation to the study of film perception has been used in a number of studies [10; 13; 17].

In the present study, the methodology was applied as follows [1]. 6 cards were prepared: 5 cards with cartoon characters (Girl, Teddy Bear, Doll, Clown, and Doggie) and a "You" card denoting the child. After watching the cartoon, three cards were presented to the child in different combinations; the names of the characters on them were read out, and the question was asked: "Who will you put together and who will be set apart?" After the child had made their choice (combining 2 cards and setting 1 card apart) they were asked a clarifying question: "Why are they together? Why are they set apart?" The child's answers to these questions act as clarifying content criteria, referred to as *personal constructs* within this methodology.

The total number of all possible triadic card combinations is 20. Thus, each preschooler gave 20 triadic solutions, with all possible combinations of the different characters. There was no limit on the number of content criteria used by the subject in each triadic comparison. The order by which the different triads were presented to each child was randomized.

All resulting statements (personal constructs) on the triadic comparisons were coded on the following two bases. Objective criteria (constructs) defining similarities/differences: animals/people, animate/inanimate, toys/not toys, etc. Subjective criteria (constructs) defining similarities/differences: cheerful/sad, mean/not mean, etc.

Sampling. Sixty children participated in the study: 30 boys and 30 girls, aged 5 to 7 years (60 to 86 months).

The children were divided into 2 age groups:

Group 1 — 14 boys and 16 girls (46.7% and 53.3%) aged 60 to 72 months (M=65.6, SD=2.98); referred to as the *age 5 group*.

Group 2 — 14 girls and 16 boys (46.7% and 53.3%) aged 73 to 86 months (M=79.0, SD=4.04); referred to as the *age 6 group*.

Study location and procedure. The study was conducted in two kindergartens: Smart Team, a private kindergarten in Krasnogorsk and Kindergarten No. 1344 in Moscow. Each child was individually assessed in a separate room.

A voice recorder was used during the study. Each child was first shown the cartoon "The Old Toy" on a laptop. Then, they were tested using the personal constructs methodology by J. Kelly.

The data was mathematically processed using the Jamovi software. The distribution of choices was analyzed using the Chi-square criterion for independent samples, and Spearman's correlation analysis was employed to examine the structure of relationships between subjective personal constructs.

Results

Table 1 summarizes the correlation between the groups of objective and subjective personal constructs for preschoolers 5 and 6 years old.

Table 1

Peculiarities by age in the ratio of the groupings the preschoolers made for the objective and subjective personal constructs (%), n — number of responses

Constructs	5 year old, n=1126	6 year old, n=1188	Whole sample, n=2314
Objective	65.4%*	59.7%*	62.5%
Subjective	34.6%*	40.3%*	37.5%

*— differences between age groups are significant at the 0.05 level (z-criterion analysis for independent samples)

As shown in Table 1, younger children tend to use objective constructs (e.g., toy/person, animate/inanimate) more frequently, while older children increasingly rely on subjective constructs (e.g., cheerful/sad).

Since subjective evaluations are of such fundamental importance for understanding the psychological peculiarities with which preschoolers perceive cartoons, the following seven generalized structural semantic units differentiating *the variants of subjective personal constructs* were identified.

1. *Character traits*. This subgroup included statements related to the personal traits of the characters in the film and their emotional states, for example, "The Doll is *mean*", "The Clown is *loud*", "The Doggie *likes to laugh*", "The Teddy Bear was *sad*".

2. *The child's reality*. This subgroup of constructs includes statements related to the children's own world and the surrounding stimuli. For example, "*I love* doggies but *I'm allergic*," "Because *I want to get my sister a clown*," or "*I have two doggies and lots of dolls*."

3. *Positive conflict resolution*. This subgroup includes statements related to the child's desired (imagined) resolution of the conflict, e.g., "The Teddy Bear and the Doll *will get married*", "The Girl and the Teddy Bear *should be together*".

4. *The child's attitude toward the character*. This subgroup includes statements related to the child's expressed attitude to the cartoon characters: "I *liked* the Teddy Bear" or "The Girl probably *doesn't like* boys" (boy's answer), "I *want a teddy bear* like the one in the film", "the Teddy Bear is *the most important* character and is *cute*", "I *don't like* they way it chuckles" (about the Clown), "We would *help* each other if I were in the cartoon".

5. *Relationships between characters*. This subgroup included statements related to the attitudes of the characters to one another: "The Teddy Bear and the Girl *were friends*" or "The Clown *loved* the Doll", "The Girl *was happy to have the Clown*", "The Doll *helped* the Teddy Bear", "They *love each other*".

6. *Action*. This subgroup includes statements reflecting directly on actions, e.g., "The Clown and the Girl *were together*", "The Doll *is walking* the Doggie".

7. *Ethical assessment*. This subgroup includes statements containing ethical assessments both about what was directly seen in the cartoon and indirectly related to it: "I want the Teddy Bear *to have a better companion* than he had in the Doggie", "*the Teddy Bear needs someone*".

In some cases, the children's phrasing included not one but a number of statements: "The Teddy Bear was sad and thought that the Girl would not play with him, but that was wrong" ("Character traits" and "Ethical assessment" are combined here); "I can show him (the Clown) to my friends" ("The child's attitude toward the character" and "Action"); "the Doggie can bite if you hit it, but if you don't hit it, it won't bite" ("Action" and "Ethical assessment"); "I like the Doll, but she gave the Teddy Bear a mirror, and he thought he was bad, he climbed on the roof, and then went to the park" (combined: "The child's attitude toward the character", "Ethical assessment" and "Action"). Such statements belong to several subgroups at once.

The findings were analyzed in relation to the frequency with which they were used among children in the two age groups (5 and 6 years) (see Table 2).

Across both age groups, constructs expressing *attitudes* toward cartoon characters are the most frequently

Table 2

Peculiarities in frequency of use of variants of subjective personal constructs in preschool children by age (%), n — number of responses

Subjective personal constructs	5 year old, n=390	6 year old, n=479	Whole sample, n=869
Character traits	***19.2%****	***13.4%****	16%
The child's reality	9.5%	9.6%	9.5%
Positive conflict resolution	1%	0.0%	0.5%
The child's attitude towards the character	40.5%	40.1%	40.3%
Relationships between characters	***23.2%****	***29.2%****	26.8%
Action	***24.6%****	***18.4%****	21.2%
Ethical grounds	4.4%	2.5%	3.3%

*— differences between age groups are significant at the 0.05 level (z-criterion analysis for independent samples).

used. Examples include statements such as "I didn't like the Doll a bit", "I like doggies, but not any girls", "At least, I like the Teddy Bear, and the Teddy Bear likes me, so we like each other". Children also commonly referenced relationships ("The Girl fell in love with the Clown", "The Doll does not like doggies"), as well as their actions ("The Girl walks the Doggie", "Because the Teddy Bear will give me berries") and personal characteristics ("The Clown is unnecessary because all he can do is make others laugh", "the Teddy Bear and the Doggie are friendly and nice").

At the same time, the frequency with which they use the "Character traits" and "Action" constructs decreases markedly with age, while the use of the "Relationships between characters" construct increases markedly.

In addition to changes in the frequency with which they use subjective personal constructs, it can be assumed that the very nature of interrelations between them or such personal constructs changes with age. In other words, the *structure* of the child viewer's subjective attitude to the cartoon characters changes.

Correlation analysis of interrelations between different variants of subjective personal constructs using the Spearman coefficient revealed the peculiarities of such a structure in the two age groups (Tables 3, 4).

Table 3 shows that, in the structure of subjective personal constructs displayed by 5-year-old children, the "The child's attitude toward the character" construct is directly related to the following constructs:

- "Actions",
- "My reality".

The "My reality" and "Actions" constructs are also interrelated.

A correlation was also found between the "Character traits" and "Ethical grounds" constructs.

The following structure of interrelations among subjective personal constructs was evinced in 6-year-old

Table 3

Intercorrelation coefficients for subjective personal constructs in the subgroup of 5-year-old children (n=390 responses)

Internal bases	My reality	Positive conflict resolution	The child's attitude towards the character	Relationships between characters	Action	Ethical grounds
Character traits	r=0.205 p=0.277	r=0.077 p=0.685	r=–0.103 p=0.587	r=–0.154 p=0.416	r=0.090 p=0.637	***r=0.370**** ***p=0.044***
My reality	—	r=–0.018 p=0.923	***r=0.510***** ***p=0.004***	r=–0.138 p=0.465	***r=0.466***** ***p=0.009***	r=–0.025 p=0.897
Positive conflict resolution	—	—	r=–0.201 p=0.286	r=0.231 p=0.220	r=0.109 p=0.568	r=–0.119 p=0.532
The child's attitude towards the character	—	—	—	r=0.186 p=0.325	***r=0.572****** ***p<0.001***	r=0.054 p=0.776
Relationships between characters	—	—	—	—	r=0.180 p=0.342	r=0.024 p=0.900
Actions	—	—	—	—	—	r=0.031 p=0.872

* — p ≤ 0.05; ** — p ≤ 0.01; *** — p ≤ 0.001.

Table 4

Intercorrelation coefficients of subjective personal constructs for the subgroup of 6-year-old children (n=479 responses)

Internal bases	My reality	The child's attitude towards the character	Relationships between characters	Action	Ethical grounds
Character traits	r=–0.128 p=0.501	r=0.066 p=0.729	***r=0.489***** ***p=0.006***	r=0.165 p=0.384	r=0.088 p=0.645
My reality	—	***r=0.448**** ***p=0.013***	r=–0.025 p=0.896	***r=0.497****** ***p=0.005***	r=0.267 p=0.153
The child's attitude towards the character	—	—	r=0.034 p=0.858	r=0.255 p=0.174	r=0.234 p=0.214
Relationships between characters	—	—	—	r=0.317 p=0.088	r=0.113 p=0.552
Actions	—	—	—	—	***r=0.514****** ***p=0.004***

* — p ≤ 0.05; ** — p ≤ 0.01; *** — p ≤ 0.001.

children. "Actions" construct is directly related to the following constructs:

"Ethical grounds",

"My reality".

The "My reality" and "The child's attitude toward the character" constructs, as well as "Character traits" and "Relationships between characters" are also interrelated.

Discussion

First of all, it should be noted that the results indicate that as the children age, the actualization of their orientations aligns exactly with their *subjective assessments of the characters* in the cartoon, which is consistent with similar results found in other studies [14; 15; 17]. This shift reflects key developmental traits in 6-year-old preschoolers, including an emerging capacity for reflection, an increasingly differentiated understanding of emotions, and a more robust internal agency and imagination. These qualities allow children to access deeper layers of meaning in media through their engagement with the emotional and interpersonal relationships of cartoon characters [19].

An age-related trend of note is the *increased frequency* with which 6-year-olds apply the *"Relationships between characters"* construct. In turn, this can be interpreted in terms of the specificities of age: the greater ability of six-year-old children to systematize thought [2], allowing the child to take simultaneously two or more attributes into account when ordering objects, thereby relying on the *correlation* thereof. This advanced cognitive ability enables children to reliably differentiate and categorize relationships within a social, rather than merely material, context. These social relationships become central to the child's interests and are often expressed in role play. This stage aligns with D.B. Elkonin's fourth level of play development, wherein a *child's role is defined through a network of relational dynamics* [21]. In such a play, the most intense and creative plots can be observed due to the complex network of inter-role relationships. Obviously, the ability to "grasp relations" becomes reliable for the child when viewing an artistic work, including a cartoon. This helps to explain the increased use of the "Relationships between characters" personal construct as found in our study.

Another significant developmental marker in 6-year-olds, as opposed to 5-year-olds, is a shift in how they evaluate characters: while 5-year-old children link their ethical assessments of cartoon characters with their personal traits and emotional states ("The Clown is nice, he was cheerful"), for 6-year-old children, the ethicality of a character is manifested primarily in actions or deeds. This age group becomes increasingly focused on whether a character performs good or bad deeds and how these actions impact others ("She gave the Teddy Bear a mirror, and he thought he wasn't good and started climbing on the roof"). Here, the meaning of the character's actions becomes central to the child's moral judgment.

These findings reflect the age dynamics in the ethical and moral development of preschoolers. Thus, the ethical behavior of children under six years of age is primarily related to the ability to notice and correctly understand the emotional state of people and their characteristic features [22]. Meanwhile, their behavior is characterized by situationality, immediacy, and involuntariness. Taken together, these mental features lead to the fact that children can easily repeat someone else's "wrong" behavior, even if they know how to do the "right" thing because the *rule* has not yet become determinative for them. Rather, personal traits and emotional states act as a reference point for them to build interaction with others. These attributes are clearly manifested, including in the play of five-year-old children, whose acceptance of roles is already based on social content, but the role-specific features are primary — appearance, behavioral traits, character, emotional states, etc. It is worth repeating that the moral and ethical behavior of children of this age is largely determined by their ability to distinguish all these *features in others*.

As for six-year-old children, for whom rules become a meaning-making aspect of personality, we can observe dramatic changes in their behavior and attitudes toward others. Above all, a child of six years of age shows a sharp increase in arbitrariness and behavioral mediation. A moral rule, as a kind of standard, becomes a means of regulating his own behavior. When they know how to behave, the children tend to do so. Note that it is at this age that most children begin to initiate simple rules-based games out of pleasure and are able to set them up completely independently. In a role play, the creation of a role is now determined by a system of relationships that are governed by common agreements (rules accepted by the participants in the game). The main measure of "good play" for a child of this age is the *truthfulness by which the role is portrayed*, which indicates the presence of a certain *pattern* the child consciously relies upon in his or her play. Thus, an ethical rule (a moral pattern) becomes a measure for evaluating both one's own and the other's behavior: while five-year-old children are guided in their evaluations by the various traits of the other, *a six-year-old child relies on actions or deeds to make a moral judgment*. This is clearly evident in our study when the actions of the characters in the film are linked to ethical assessments.

In summary, these results capture developmental distinctions between 5- and 6-year-olds, illustrating the significant shifts in how they perceive and relate to cartoon characters.

Conclusion

The study revealed a number of age-specific features in the attitudes of older preschoolers to cartoon characters. The findings may be of interest to researchers, psychologists, and educators concerned with children's perception and understanding of cartoons and other creative works, and may also be used to educate adults caring for children.

Our planned continuation of the present study is based on assumptions concerning children's attitudes toward characters depending on variations in their identification with them.

In general, the study allows us to draw the following conclusions:

1. With age, the number of subjective personal constructs increases, which indicates the emerging actualization of the child's orientations to his or her subjective assessments of the characters in a cartoon.

2. Regarding watching cartoons, there is a transition between the ages of 5 and 6 from an ethical assessment of the character based on personal traits (kindness, being pest, good, etc.) to the perception of the character's actions as moral or ethical.

3. By the onset of primary school age, there are complex structural changes in the peculiarities of the child's personal attitude to characters on film, the basis of which is the comparison of the film's reality with the child's own, which causes the actualization of the child's sense of the boundary between the artistic space and his or her lived reality.

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Cultural Norm and Personal Security: The Bifurcation Point of the Sociocultural System

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The work examines the current state of the sociocultural environment and raises the question of how to assess the direction of cultural changes. The author argues for the divergence cultural and civilizational development vectors and posits that the primary contradiction within the sociocultural system, in the present cultural-historical context, arises from the dichotomy of The identified trends in civilizational development necessitate a reevaluation of fundamental cultural norms related to human security, highlighting a critical juncture in the evolution of these security norms. Consequently, addressing the issue of changing norms is linked to the concept of artification, which refers to the transformation of the natural into the artificial, and naturalization, which denotes the conversion of the artificial into the natural. In this context, the sociocultural system is analyzed through the lens of processes of reproduction and development, particularly in relation to the transformations in the context of the "naturalization and artification". Based on the information presented, the objective of this work is to establish a theoretical framework for analyzing the key concepts of the sociocultural system within the space-time continuum of contemporary reality through the application of bifurcation theory. This study offers a theoretical and methodological justification for utilizing bifurcation theory in the examination of sociocultural systems and elaborates on the essence and content of the theoretical construct. According to bifurcation theory, the sociocultural system encompasses three parameters: phase space, time, and the laws of evolution, which collectively enable us to describe the state of the system. The author outlines the key dynamic and system-forming characteristics of a sociocultural system. In conclusion, a sociocultural system, as defined by bifurcation theory, can be conceptualized as a space comprising three topologically equivalent planes: material existence (activities influenced by the type of civilization), cultural existence (cultural norms and standards), and spiritual existence (personal meanings and superordinate values). The multidimensional analysis of time cycles indicates that the sociocultural system is currently undergoing a qualitative transformation, during which the control parameters of the system—specifically security and subjectivity—are evolving. This qualitative transition in the system necessitates the selection of a trajectory for the development of cultural norms, particularly in the context of disrupted cycles of cultural translation and the rapid emergence of new elements within intellectualized digital spaces.

Keywords: a sociocultural system, cultural norm, personal security, subjectivity, normal regulation, activity, bifurcation theory.

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Культурная норма и безопасность личности: точка бифуркации социокультурной системы

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Работа проблематизирует современное состояние социокультурной среды и ставит вопрос об оценке направленности культурных изменений. Поддерживается позиция о расхождении векторов культурного и цивилизационного развития, при этом основное противоречие социокультурной системы в текущей культурно-исторической ситуации определяется как обусловленное категориальной парой «искусственное—естественное». Описанные тренды цивилизационного развития ведут к пересмотру базовых культурных норм в отношении безопасности человека, фиксируя критическую точку смены норм безопасности. При этом обращение к вопросу об изменении норм сопряжено с артификацией как превращением естественного в искусственное и оестествлением — конверсией искусственного в естественное. В этой связи социокультурная система описана с позиции реализации ею процессов воспроизводства и развития в контексте преобразований «оестествление и артификация». Цель работы: построение теоретического каркаса для анализа ключевых понятий социокультурной системы в пространственно-временном континууме современной действительности с позиции теории бифуркации. Представлены теоретико-методологическое обоснование теории бифуркации, сущность и содержание теоретического конструкта, его ключевые характеристики. Выводы: социокультурная система может быть сконструирована как пространство с тремя топологически эквивалентными плоскостями: материальным бытием (деятельности, опосредованные типом цивилизации), культурным бытием (культурные нормы и эталоны) и духовным бытием (сверхценности). Согласно многомерному анализу временных циклов, в настоящий момент социокультурная система переживает состояние качественной трансформации, связанной с изменением критических показателей управляющих параметров: безопасности, субъектности и нормирования. Переход от одного качества системы к другому связан с необходимостью выбора траектории развития культурной нормы в условиях разрыва циклов трансляции и интенсивным ростом элементов, обусловленным тиражированием интеллектуализированных цифровых пространств.

Ключевые слова: социокультурная система, культурная норма, безопасность личности, субъектность, нормирование, деятельность, теория бифуркации.

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Introduction

"It is symbolic that at the turn of the XX—XXI centuries, the problem of the meaning and essence of culture...the limits and ways of culture's influence on the individual is becoming relevant again" [13, p. 401].

Culture is a set of production, social, and spiritual [2; 28; 34; 39] achievements of mankind [17]. However, "achievement", interpreted as a positive result of efforts [at the same place], is not uniquely definable in relation to sociocultural transformations associated with modern technologies. Changes do not mean the strengthening of the intellectual power of the society or its spiritual activity [8]. Scientists discover an inverse relation between the achievements in the field of rationalization and human technologization and its activities (artificial intelligence, transhumanism) and the degree of involvement and, consequently, the development of mental functions (memory, attention, thinking), spiritual, and moral categories [2; 28; 34; 39]. Based on the idea of duality of the social and the individual [10], can we attribute such innovations to the cultural heritage of human civilization? And is not the growth of differences in vectors of cultural and civilizational development evident? 'The notion of progress includes not only the existent, but also the proper — the evaluation from the position of a certain criterion. What is it like?' Pitirim Sorokin, one of the founders of theoretical sociology of the XX century and president of the 1st International Congress on Comparative Studies of Civilizations, poses the question and says: "One way or another, the criteria of progress have to reckon with the principle of happiness...they assert a causal connection between the objective criterion and happiness, but, reduced to the latter, "deprive

themselves of the ground"" [ibid., p.181]. The scientist, who is characterized by a holistic interpretation of social change, states that the issue is posed but not solved. In the context of the breakthrough to a new civilizational mode and mastering convergent (NBIC) technologies, the condition for transition to new strategies of civilizational development is a new matrix of values [4; 31; 41]. One should pay attention to the distinction between progress and development outlined by the followers of the Moscow Methodological Circle (MMC), in which progress is associated with the assimilation of best practices and development with finding an individual trajectory of original transformations.

Crystallizing the main contradiction of the sociocultural system in the current cultural-historical situation, it can be defined as conditioned by the categorical pair of 'artificial-natural' [23]. B. Yudin G. notes that the distinction between the artificial and the natural runs through the entire work of G. Shchedrovitsky, the founder of MMC. This distinction will be more and more up-to-date in the upcoming years [20; 35; 40; 43]. Consider that MMC rejected the naturalistic paradigm for defining the concepts of "artificial" and "natural": in the early stages of MMC, it was proposed that regularities implementing a norm when external conditions change were considered artificial, and regularities possessing no norm and varying with changing conditions were considered natural. Subsequent scientific reflection of these concepts by MMC led to the definition of artificial by referring to the planned results of the activity and natural — to the side effects of the activity not envisaged by the objectives [20]. At the same time, the category of activity acts as a framework in the definition of "artificial-natural" and is entirely based on the concept of norm. V. Dubrovsky points out that "an activity is exclusively and fully marked by the norm" [5, p. 459]. At the same time, norms are the basis for the reproduction of society and its development, which itself is first and foremost the development of norms. 'The production of utopian or non-utopian ideals is a process of artificially changing norms' [27, p. 149]. The process of artificially changing cultural norms is usually implemented with particular goals in mind. Due to this, the appeal to the issue of the norms' evolving categorical pair "ratification-naturalization" becomes relevant. Discussing the relevance of the artificial change of norms, it is unavoidable to introduce the category of safety, articulated in relation to the risks of ratification and naturalization. These risks determine the necessity of reflection of the dynamics of cultural and semantic parameters of the socio-cultural system in correlation with the unfolding of civilization processes as a materialized result of human activity. Thus, we consider a sociocultural system from the point of view of reproduction and development processes' implementation, which are carried out in the light of "naturalization and ratification" transformations. At the same time, within the cultural and historical approach, the conjugation of the categories of "personal safety", "cultural development" and "civilizational development" is subject to problematization. In relation to this, the purpose of our study is the formulation of a theoretical basis for analysis of these notions.

Theoretical and methodological justification of the bifurcation theory implementation in the study of sociocultural system

Bifurcation theory is a synergetic theory about the self-ordering of phenomena in a non-equilibrium milieu [37]. There is an attempt to develop a synergetic theory in G. Shpet's concept, in which "culture is considered as a factor structuring and building the process of socialization and formation of sociocultural identity of a person in crisis periods" [13, p. 397]. Let us note two positions of relevance of bifurcation theory for description of sociocultural systems: 1) openness, importance of studying the vectors of action of key agents of influence on the processes of social self-organization in dynamics. ("To cover the process of a thing's development in all its phases and changes means to learn its essence in study, for it is only in motion the thing demonstrates itself" [1, p. 62—63]). 2) possession of properties of complex systems: instability, nonlinearity, adaptability, presence of variations of future states, external and internal "noise." The reason for the loss of permanence is the intensive growth of new elements in the system, interrupting the connections' formation. From our point of view, such a role in the modern sociocultural system is played by multidimensional intellectualized digital spaces [16].

The essence and contents of theoretical construct on the basis of bifurcation theory

According to the bifurcation theory, the sociocultural system consists of three objects [37]: 1. Phase space: set of coordinates for its description. Bifurcation theoretical constructions usually use spaces with Euclidean metrics — Cartesian or polar coordinate system. To construct the initial categorical grid of the sociocultural system, we turned to the Cartesian space of R. Descartes. Based on the method of modeling through idealized representations, we define a sociocultural system as a space formed by three topologically equivalent planes: material existence (activities mediated by the type of civilization), cultural existence (cultural norms and standards), and spiritual existence (personal meanings, super values) (Pic. 1). As sources for the ideal analogy, we analyzed the definitions of a sociocultural system and its key elements. Among the basic thesis we distinguish: correlation of social evolution and evolution of physical and intellectual abilities of humans [43], idea of values trinity, social relations, and personality [26], considering the personality as an actor in sociocultural system [7, 9]. Let us outline two stages of its implementation turning to modeling by means of idealized representations. 1 — abstraction of identification,

aimed at correlation of the scientists' perceptions and drawing a general scheme (Fig. 1) by means of generalization when moving from the empirically singular through the empirically universal to the logically abstract [5, 21]. 2 — morphological description of the sociocultural system structure, which allowed us to identify the main elements and reflect the connections of the parameters of topological spaces. (Fig. 1).

It should be noted, that material existence is correlated with the space of social situations, where the norms' implementation is carried out [19], and the personality is considered from the position of resisting internal impulses and external pressures in self-determination in relation to the world and society [11].

2. Time is the second element of the system. Change in time is the key factor in the transformation of the sociocultural system. Generalizing Toffler's cycles, three-wave theory cycles and Sorokin's cycles from the position of the time factor, we obtain that the current period is a transitional one from one quality of the system to another [12]. P. Sorokin describes this period as social entropy — the disintegration of normative-value structures, accompanied by the fading of socializing and regulatory functions [10].

3. A law of evolution to determine the state of a system at a point in time. Trajectories of development of cultural norms at the point of intersection of cultures of post-industrial and digital civilizations can be analyzed as bifurcation curves (pic. 2). The bifurcation point, i.e., a sort of social reality in which the split occurs. The state of the sociocultural system can be described by two vectors of possible movement from the bifurcation point: the waterfall phase trajectory of the aging postmodern culture and the ascending arm of digital civilization culture (pic. 2). Every culture sooner or later exhausts its creative possibilities, and it is followed by a decline period [ibid.]. On the other hand, it is poorly formed value-normative regulators of "digital" activities that mainly determine the issue of personal safety in the current transformations of sociocultural reality. Note that this position corresponds to D. Leontiev's idea that civilization crisis is a deviation of the self-regulation vector in people. In accordance with this position, the issues of personal security in this context are considered to be caused by a shift in the balance of interaction between the individual and society within the framework of the processes of "individualization-integration," which is expressed either in the absorption of the individual by digital reality or in disintegration with it.

Thus, we consider the bifurcation point as a critical point of security norms change, in which the vector of sociocultural development can follow the trajectory of preserving pre-digital norms of personal security or the trajectory that cultivates undeveloped standards for the use of digital tools [22; 24; 32; 36]. "It is an explosion or flash of the not yet unfolded semantic space of culture, which contains the potential of future paths of development, but at the moment of bifurcation the explosion is determined by randomness" [15, p. 307]. But what are the probabilities of choosing one path or the other? The answer to this question lies in the field of studying bifurcation properties of a sociocultural system (tab.). Order parameters are managing or controlling independent variables of a dynamical system. They are characterized by critical levels — the values at which the state of a dynamic system changes from stable to unstable.

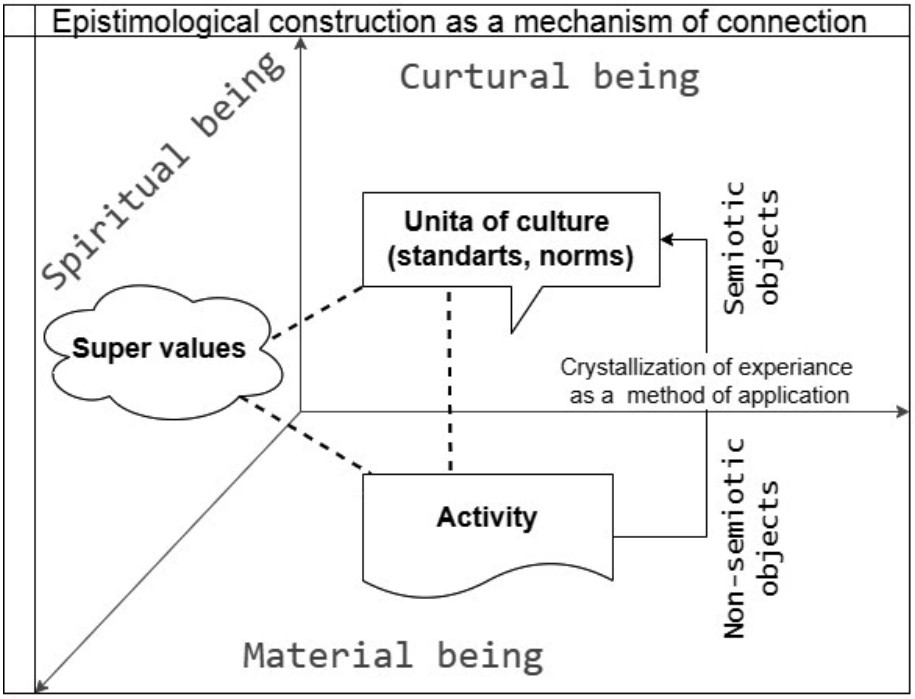

Fig. 1. Limit scheme of the triplate space of a sociocultural system

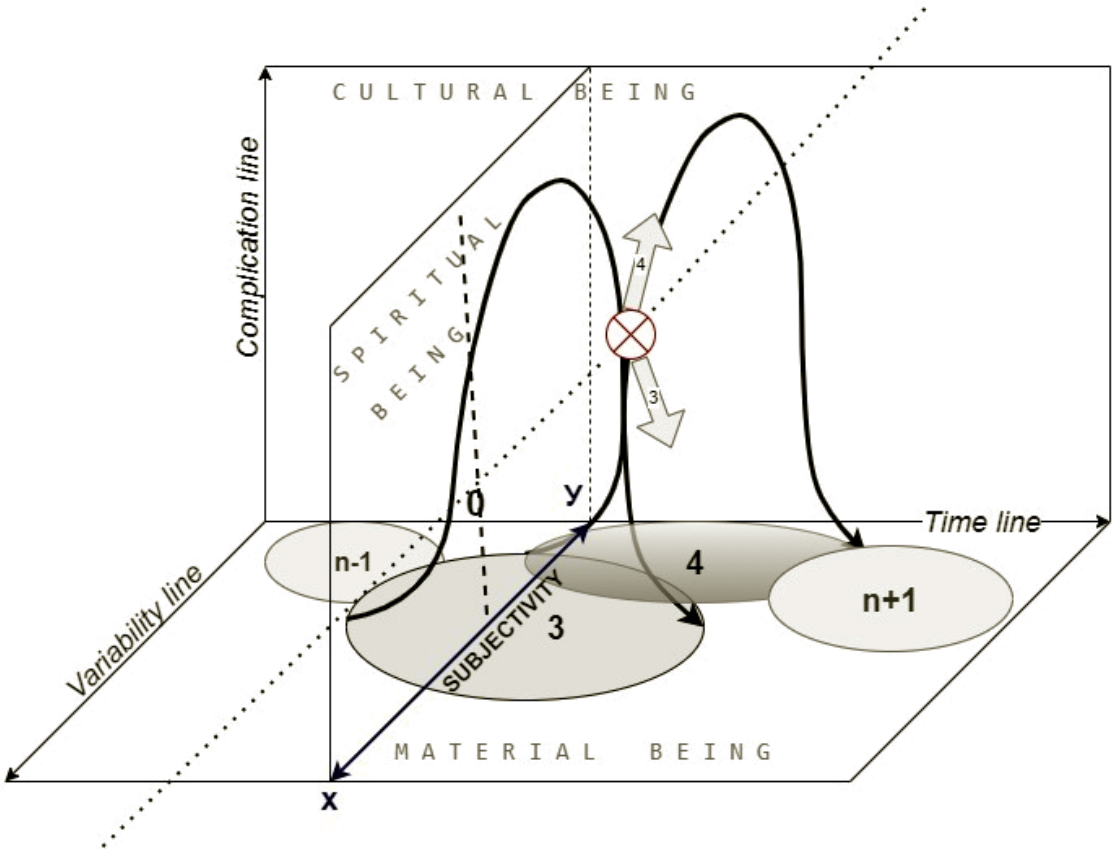

Fig. 2. Three-plane diagram of the dynamics of cultural norms of sociocultural system
Note: 3-postmodern type of civilization, 4-digital type of civilization; X — individualization; Y-integration

Table

Characterization of three-category scheme of the sociocultural system

Phase space	Purpose function	Order parameter	Critical point
Material existence	Ensuring the implementation of activities in accordance with the cultural and semantic parameters of the system	Safety	Inability of the current cultural and semantic parameters of the system to regulate activity in the conditions of civilizational challenges
Spiritual existence	Provision of personal meaning of activities realized within the framework of cultural norms	Subjectivity	Lack of basic conditions for the formation of subject position
Cultural existence	Providing norms for activities carried out from the position of subjectivity.	Rating	Formalization of activity (discrepancy between normalized activity and personal meaning)

The direction of rearrangement is determined by attractors and repellers. Attractor is the limiting equilibrium of a system to which it tends as a goal. In non-conservative systems, attractors are equilibrium points to which a variable tends when changing in time. If a variable enters the attractor field, it evolves according to the plan inserted in the attractor. The special point of the vector field — the equilibrium point of the dynamical system — is the origin of a straight line parallel to the time axis and integrally corresponding to the phase trajectory. In Fig. 2, the equilibrium "0" point denotes the equilibrium state of the order parameters: safety, subjectivity, and normatively. Referring to Figure 1, in which we have emphasized the epistemological basis of the sociocultural system scheme, we note as a postmodern attractor the knowledge paradigm oriented towards the traditions of continuity and cultural diversification. In our view, the attractor of digital culture is a competence-based paradigm. It is associated with globalization, equalization, increasing world's cohesiveness, formalization of cultural norms into standards of activity with partial neutralization of meaning. The "attractor" concept is opposed to the "repeller" concept, which is a set of parameters that "repel" the system from the equilibrium position, expressing restrictions and prohibitions for movement in this direction. The public consciousness can be assumed as a repeller for the development of the digital branch of cultural norms. It forms an

ambiguous response to digital communication, the algorithmization of life space, and is conservatively minded towards pre-digital axiological parameters of the system. Tectonic changes and the formation of a new platform of technologies acts as a repeller of the current post-industrial branch. [33].

Basic claims of sociocultural system from the point of view of bifurcation theory

Cultural norm is a semiotic characteristic of a sociocultural system showing the connection between the spiritual and material through the transmission of activity ways and crystallization of values of this activity to provide conditions for the formation of subjectivity within a particular civilization.

Subjectivity: an integral characteristic of an individual's activity, reflecting the balance of external and internal focuses of the self. Subjectivity is a two-dimensional characteristic of a sociocultural system, expressing both the effectiveness of activity in the plane of material existence and the degree of maintenance of super values in the light of spiritual existence. Thus, in the subjectivity dimension, the "equilibrium point of self" characterizes the balance of individualization and integration processes.

Personal safety: a characteristic of a socio-cultural system that provides the conditions for the subject's upward movement along the line of cultural development through the unfolding of the processes of individualization and integration in dynamic balance.

Civilization is a materialized projection of a particular culture on the timescale (pic. 2).

The higher the level of civilizational development, the more likely is the refraction and deformation of cultural processes formed as a response to the previous civilizational challenge.

Discussion

Due to G. Spencer, who defined evolution as "a universal process characterized by integration, differentiation, and ordering," the evolutionary approach for analyzing the social change became traditional [42]. His point of view on the interdependence of social evolution and the evolution of people's physical and intellectual abilities, which is reflected in the unity of spiritual, cultural, and material existence of the three-dimensional space of the sociocultural system we have constructed, is crucial for us. Bibler writes that culture is created by humans in such a way that it allows him to reflect, refract, and transform all powerful determinations from outside. Therefore, *the change in the trajectory of social development is carried out in accordance with the change in the cultural norm* [26]; culture acts as a kind of filter, which, on the one hand, "does not give a foothold to random and destructive changes, and, on the other hand — "provides legitimacy to changes in the lifestyle, which express the very essence of new existences" [19, p. 25]. Accordingly, culture acts as a stabilization factor for society [38], which restores the connection of times, "allowing to find points of support in the changing reality" [13, p. 396]. Turning to the cultural norm as a key characteristic of the sociocultural system, linking the axiological focus of the individual and the target component of his/her activity, we emphasize its role in the formation of subjectivity [18]. Note that the idea of subject mediating the relationship between civilizational development and culture correlates with D. Zibelman's position on the existence of culture only in individuals. "An individual who fulfills cultural functions and, due to this, satisfies his needs, can potentially find himself at the heart of a bundle containing any combination of such functions from those represented in the culture" [6, p. 43]. Distinction of two poles: individualization and integration within the subjectivity is crucial for us. From a scientific perspective, social evolution itself is a two-way process of differentiation and integration. Such consideration of subjectivity correlates with the understanding of external and internal subjectivity by G. Prygin [14]. D. Risman also bases his typology of traditional and modern society on the distinction between "the personality oriented from within" and "the personality oriented from outside" [6, p. 275]. Defining the bifurcation point as a crisis state of a three-plane sociocultural system, we note that according to Sorokin, the crisis of personality becomes the integral expression of values and social relations' crisis [25]. In this aspect, there is an emphasis on the topic of personal safety as a problem of ensuring conditions for its creative inclusion in the new cultural space. Analyzing the issue of naturalization of the world of civilization, V. Zinchenko points out the need to make civilization "man-sized" but "not suppressing man" [7]. It is essential to note the role of sociocultural design, objective multipurpose programming, and norming as key tools of society to manage the risks of transformation of cultural norms [29; 30]. Defining the particular instruments, we can denote the potential of the "developmental step" scheme by G. Schedrovitsky [7]. The scheme fixes the necessity of artificial and technical transformations for co-organization of the indicated processes and implementation of the developmental objectives of a given sociocultural system., We note two aspects that are postulated by the "development step" scheme in the context of this bifurcation theory: 1) development takes place when natural and artificial-technical components are combined and 2) control is possible only in relation to the future.

Conclusions

1. In the framework of bifurcation theory, a sociocultural system can be constructed as a space with three topologically equivalent planes: material existence (activities mediated by the type of civilization), cultural

existence (cultural norms and standards), and spiritual existence (personal meanings, super values). The dynamic and systemic characteristics of the sociocultural system are highlighted. The dynamic characteristics of the system are analyzed from the perspective of changes in the cultural norm, articulated through the categorical pairs "artificial and natural" and "artification-naturalization".

2. According to the multidimensional analysis of time cycles, the sociocultural system is currently experiencing a state of qualitative transformation associated with changes in the critical indicators of the control parameters of the sociocultural system — safety, norming, and subjectivity.

3. The transition from one quality of the system to another is associated with the need to choose the trajectory of cultural norm development in the conditions of breaking cycles of translation and intensive growth of the number of new elements due to the emergence of intellectualized digital spaces. The bifurcation point within the constructed theoretical construct is a critical point of changing security norms.

Final statement

Thus, we consider the sociocultural system from the point of bifurcation theory. This theory made it possible to correlate three aspects of human existence — spiritual, cultural, and material — within a single dynamic system, identifying critical positions for the system and outlining possible vectors of sociocultural change. It is stated that presently the sociocultural system is in a state of qualitative transformation of the control parameters of the system — safety, subjectivity, and norming. Depending on a set of factors, including random fluctuations of the system and the strength and position of attractors and repellers, the probable transformation scenarios for the sociocultural system are determined. This paper is focused on the change of cultural norms related to personal safety. It is obvious that the limits set on personal security are determined by cultural norms from the point of physical, psychological and social conditions of human existence and must be correlated with the human proportionality and human appropriateness of the ongoing institutional and ideological processes.

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L.S. Vygotsky on Giftedness as "A Higher Order Formation"[1]

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The author explores the concept of giftedness as presented in the published scientific manuscripts of L.S. Vygotsky and in the newly released psychological dictionary co-authored by him. This article emphasizes the importance of utilizing these archival sources for contemporary research on the issue of giftedness. Through a theoretical analysis, it highlights key ideas regarding the understanding of giftedness from the perspective of cultural-historical psychology: the necessity of distinguishing between individual psychological functions and giftedness; the notion of giftedness as a "formation of the higher order", not reducible to the level of a separate function; the systems approach to studying giftedness; the role of the concept of development in elucidating the phenomenon of giftedness. The article also demonstrates the potential of L.S. Vygotsky for advancing research on research and enhancing practices.

Keywords: giftedness; cultural giftedness; zone of proximal possibilities; personality; intelligence; creative productivity.

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Л.С. Выготский об одаренности как «образовании высшего порядка»[2]

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Рассматривается представление об одаренности в опубликованных научных рукописях Л.С. Выготского и во вновь изданном первом психологическом словаре, соавтором которого он являлся. Автор обосновывает актуальность обращения к открывшимся архивным источникам для современных исследований проблемы одаренности. В ходе теоретического анализа выделены ключевые идеи в понимании одаренности с позиции культурно-исторической психологии: необходимость различения отдельных психологических функций и одаренности; понимание одаренности как «образования высшего порядка», не сводимого к высоте отдельной функции; системный подход к исследованию одаренности, роль понятия развития и значение социальной ситуации развития для раскрытия феномена одаренности. Демонстрируется потенциал идей Л.С. Выготского для исследований одаренности и образовательной практики.

[1] Zapisnye knizhki L.S. Vygotskogo. Izbrannoe [Vygotsky's Notebooks. Selected Works]. Ed. by E. Zavershneva and R. van der Veer. Moscow: Kanon+; ROOI " Reabilitatsiya", 2017. P. 182. (In Russ.)

[2] Записные книжки Л.С. Выготского. Избранное / Под общ. ред. Е. Завершневой и Р. ван дер Веера. М.: Канон+; РООИ «Реабилитация», 2017. — С. 182.

Ключевые слова: одаренность, культурная одаренность, зона ближайших возможностей, личность, интеллект, творческая продуктивность.

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Introduction

The understanding of giftedness has evolved significantly throughout the history of psychological science. Researchers observe that conceptions of giftedness have paralleled major developments in psychological knowledge. Today, the issue of giftedness remains central in contemporary research and is still far from resolved [9, p. 20; 15—20].

Modern psychological literature often bases its concepts of giftedness on methodological positions that diverge from cultural-historical theory. This divergence is evident in the works of scholars such as D.B. Bogoyavlenskaya, A.A. Melik-Pashayev, A.I. Savenkov, M.L. Ivleva, V.I. Panov, N.B. Shumakova, E.Yu. Shcheblanova, and V.S. Yurkevich [1; 8; 10; 11; 14—20]. In analyzing both foreign and domestic approaches to the study of giftedness, L.S. Vygotsky is frequently referenced. However, his ideas are often cited without thorough exploration, with statements such as "somewhat different ideas are the basis of the approaches of Vygotsky and his followers" or mere references to "Vygotsky's original idea of plus- and minus-giftedness" [8, p. 3]. Additionally, references are made to fundamental principles of Vygotsky's approach, including the social determinacy of child personality development. Certain aspects of cultural-historical psychology are emphasized, for example: "If we know how strength arises from weakness, and abilities from shortcomings, then we have the key to the problem of children's giftedness" [8; cited from: 7, p. 159]. The research of Vygotsky and his followers is characterized as "potentialistic," within which "giftedness is considered as a genetically determined component of abilities that can develop in appropriate activity, or degrade in its absence, i.e., as a potential that can be actualized under certain conditions that do not depend on the subject himself" [8, p. 13].

Rather than debating the completeness and accuracy of these interpretations of Vygotsky's ideas, it is more productive to turn directly to the original concepts proposed by the founder of cultural-historical psychology. This is especially pertinent today, as we celebrate the 100th anniversary of cultural-historical psychology and as Vygotsky's works are being republished, including several lost manuscripts. V.P. Zinchenko has noted that "for psychological science, Vygotsky's ideas about development are not the past, but the still insufficiently understood and acquired present. According to Vygotsky, this is a 'current future field' for psychology" [7, p. 8].

Researchers studying giftedness often rely on Vygotsky's earlier, classic works, primarily his book *Imagination and Creativity in Childhood* (1930) [5]. We propose turning to newly discovered sources. Notably, these include *L.S. Vygotsky's Notebooks: Selected Works*, edited by E. Zavershneva and Ren van der Veer, published in 2017 [6]. This work has attracted significant attention from researchers, as it is the first publication of Vygotsky's manuscripts based on a thorough study of archival sources. Emphasizing the importance of this publication for current Vygotsky studies, A.D. Maidansky writes: "The 'archival revolution' initiated by E.Yu. Zavershneva—the restoration of his works damaged by Soviet editors, the republication of his old texts, practically unknown to readers, scattered across long-forgotten journals and collections—has created a 'new reality' in cultural-historical psychology" [13, p. 6]. The problem of giftedness is no exception. Therefore, it is timely to revisit how Vygotsky understood giftedness.

Results and discussion

On the eve of the International Round Table dedicated to the 100th anniversary of cultural-historical psychology, the first Russian psychological dictionary of 1931, compiled by Vygotsky and B.E. Varshava, was reissued. It provides the following definition: "Giftedness is a term denoting the level of psychological or intellectual development, the level and quality of predispositions, inclinations, and abilities" [12, p. 79]. This characterization reflects the psychological knowledge of that time, where Vygotsky listed types of giftedness and described how other researchers understood the term, including E. Clapar de, W. Stern, A. Binet, and Ch. Spearman.

At the end of the entry, Vygotsky added: "The practical definition of giftedness comes down to identifying the level of intellectual development using tests (Binet, Moede, Stern, etc.)" [12, p. 79]. The phrase "comes down to" indicates Vygotsky's skeptical attitude toward common testing methods used to identify and measure gift-

edness, such as the "complex of high and low IQ symptoms." He refrained from more specific assessments, as they would require arguments unsuitable for a brief dictionary entry.

In *L.S. Vygotsky's Notebooks: Selected Works*, there is a section titled "Giftedness," spanning about five pages and containing the main theses of Vygotsky's concept [6, pp. 179—183]. The notes in this section likely date back to 1930, when Vygotsky held an internal conference on giftedness with his colleagues and postgraduates. Analyzing these brief notes is somewhat challenging, as they were personal and not intended for publication. Nevertheless, we have attempted to understand the thoughts and essential characteristics of giftedness that Vygotsky wanted to convey.

Vygotsky defines giftedness as "a higher-order formation, similar to characterological formations" [6, p. 179]. Commentators draw attention to the emergence of the term "zone of proximal opportunities," which later evolved into the well-known "zone of proximal development." Vygotsky considers this point "the most important," highlighting it in the margins with a square bracket and four vertical lines.

The concept of giftedness characterizes the immediate prospects of personality development, including psychological functions and abilities. Vygotsky views the social environment as the source of development; therefore, giftedness is a socio-historical trait of human personality, not an individual-natural one. It is society — the people who surround an individual and are open to cooperation — that determines the "zone of proximal opportunities" for cultural development, that is, giftedness in the true sense. Thus, the traditional idea of innate giftedness (or lack thereof) is decisively rejected. The old myth of the "heaven-gifted" stems from a misunderstanding of the cultural and historical nature of human abilities, which are fundamentally different from those of animals.

Psychologists have tried to explain the phenomenon of giftedness by equating it with memory (G. Ebbinghaus), intelligence (E.L. Thorndike), and other psychological functions. Vygotsky disputes the understanding of giftedness as a specific psychological function or mode of activity: "Giftedness is not a psychological activity, but an understanding of practical activity" [6, p. 181]. It is neither "an intelligence trait (depth, power, ability), nor its moment or state (rudiment)... nor intelligence as a whole, nor anything new at the center. It is intelligence in the context of personality" [6, p. 182].

To correctly interpret this statement, it is essential to consider that, for Vygotsky, personality is "the social in us," meaning social relations internalized into the psyche, becoming individual psychological functions. In Vygotsky's theory, the concept of giftedness characterizes the social situation of personality development as a system of relationships between the child and the environment. "The key to the complex structure of giftedness is in development" [6, p. 182; 3, p. 210].

Therefore, when measuring giftedness, it is necessary to consider and evaluate both the nature and level of development of the child's relationships with others and the already acquired personal traits.

Emphasizing a "systemic point of view on giftedness," Vygotsky further clarifies his idea: "The essence is not in thinking, but in the management of thinking, in mastering it, in using it—that is, in the personal characteristics of intelligence... Giftedness is not determined by the level of individual functions; it is not a function, but a higher-order formation, similar to characterological formations" [6, p. 182; emphasis in the original].

Characterological traits are those that define a unique personality. Vygotsky parallels giftedness with "the productivity of a child's character traits," or, in other words, with the presence of a "creative moment" in a child's practical activity. In the Psychological Dictionary, talent is defined as "an innate high special giftedness in some area, expressed in creative productivity" [12, p. 110]. In this sense, Vygotsky refers to giftedness as "a highest-order formation." Creative activity represents the pinnacle of human development in general, and the same applies to any area of culture and to every individual. Children may share similar character traits, such as attentiveness or sociability, but their giftedness differs, according to Vygotsky.

In *L.S. Vygotsky's Notebooks: Selected Works*, there is a mention of "our understanding of giftedness in 'The Etudes'" [6, p. 182], referring to the book *The Etudes in the History of Behavior* (1930), co-authored by Vygotsky and A.R. Luria. The preface indicates that Luria authored the third chapter, whose last two paragraphs are titled "Mental Retardation and Giftedness" and "Assessment of Giftedness and the Problem of Cultural Development." However, in a letter dated July 23, 1929, Vygotsky complains to A.N. Leontiev that he had to extensively revise Luria's chapter, as it was "written entirely according to the Freudians..., then the impenetrable Piaget, absolutized out of all proportions; and then method and sign are mixed together, and so on and so forth" [2, p. 18]. The printed version of the book lacks these issues, suggesting that Vygotsky revised the concept of cultural giftedness to align with his own understanding.

Special studies have shown that the deeper the intellectual disability, the better the natural physiological functions of the sense organs may work (and sometimes even the memory of individuals with intellectual disabil-

ities). "Therefore, retardation is a defect not only in natural processes but in their cultural use... The defects of a mentally retarded child are primarily in the lack of ability to use natural abilities" [4, p. 213]. Here, giftedness is defined as the ability to rationally use one's natural inclinations and abilities, achieving optimal results with the help of cultural techniques and means developed throughout history. The importance of the practical application of intellectual functions in child development is particularly emphasized.

Scientific and educational literature often differentiates between general and special giftedness. Vygotsky and Luria regard the term "general giftedness" as abstract and meaningless, although various special forms of giftedness share a common element: the ability to effectively manage one's natural predispositions. This ability is a cultural achievement, not a gift of nature; therefore, Vygotsky and Luria use the term "cultural giftedness" instead of "general giftedness," commonly accepted in Russian psychological literature (international literature refers to it as "intellectuality").

Depending on the cultural means used to transform and develop natural functions, different forms of special giftedness are formed. Highly gifted individuals in one area often lack giftedness in another, even if both areas require the same natural predispositions, such as reaction speed, sensory acuity, attention, and memory.

Reviewing widely used tests for general giftedness in children—particularly G.I. Rossolimo's "psychological profile" and A. Binet's diagnostic scale — Vygotsky and Luria note that these questionnaires mix questions of entirely different natures and merely record the current state of the psyche without considering the practical application of certain predispositions and abilities. Alongside innate psychophysiological functions, a child's cultural skills and level of knowledge in various areas are examined. Natural predispositions themselves are not significantly developed and only up to a certain age, while awareness grows at a much faster rate; the same applies to skill development. Moreover, limited natural abilities are known to stimulate the development of corresponding psychological functions, which can compensate (and sometimes overcompensate) for innate disabilities. This is especially noticeable in cases of evident physical impairments.

As a result of conflating natural and cultural aspects of development, widely used testing methods produce "an undifferentiated combination of natural evaluative abilities and school knowledge" [4, p. 220]. The resulting diffuse pattern is presented as a measurement of "general giftedness" or a coefficient of general intellectual development. This issue persists in contemporary tests as well.

Vygotsky and Luria propose a two-stage program for studying individual giftedness. First, it is necessary to assess "the degree of natural predispositions, the age-related state of neuropsychic activity, the entire basis of natural neurodynamics." Only then should one study "the structure of cultural processes, the degree of awareness, the wealth of knowledge... The task of a psychologist is to study all of these aspects with sufficient accuracy and determine a coefficient of this 'cultural development' in each individual" [4, p. 222].

Conclusions

The key conclusion drawn from analyzing L.S. Vygotsky's notebooks on phenomenon of giftedness is that Vygotsky understood development as a key point. He emphasizes the close correlation between intellect and personality, proposing that giftedness should be considered as formation different from psychological functions, characterizing activity in terms of its creative productivity.

Recognizing the complexity and significance of giftedness within the field of psychology, Vygotsky encourages future researchers to adopt a systemic approach to its study. This approach aligns with the multidimensional nature of the phenomenon and considers the social context of personality development.

Thus, the analysis of Vygotsky's notes on giftedness, along with the insightful comments of E. Zavershneva and Ren van der Veer, gives us better understanding of his work *The Etudes in the History of Behavior*. Vygotsky elucidates the concept of giftedness through a critical examination of previous and contemporary studies.

Vygotsky's heritage encompasses a complex array of unique scientific ideas regarding the issue of giftedness, which is not fully understood. According to V.E. Klochko, when examining the problem of giftedness from the "post-non-classical" perspective of psychological science development, Vygotsky's work demonstrates a significant interdisciplinarity and continues to shape the contemporary landscape of psychological science [9, pp. 62—63; 10; 11; 15].

Coming back to the published manuscripts of Vygotsky and his republished scientific works, rereading them without omissions or excessive editorial interference, will enable researchers to reevaluate the theoretical foundations of this field and develop fundamentally new programs for studying giftedness. Consequently, educational practitioners working with gifted children will be able to ground their work in the rich scientific potential of cultural-historical psychology.

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Using Simulation Games to Teach History to Students Using Paradigm of Cultural-Historical Psychology

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The article explores strategies for enhancing the effectiveness of training by fostering student engagement and motivating participation. The use of game-based techniques aims to boost students' motivation toward the material being studied. This approach is grounded in the principles of cultural and historical psychology as articulated by L.S. Vygotsky. It offers a theoretical framework for understanding differences not only in intercultural psychology but also in intertemporal psychology, as it enables the examination of psychological phenomena within specific historical, social, and cultural contexts. The article highlights the search for methods to increase motivation and the development of students' subjectivity and positionality. It provides examples of dialogue simulation games used in training, including historical reconstructions, mock trials, cultural immersion, and the Reacting to the Past initiative. Additionally, the article discusses the technologies involved in the preparation and implementation of these activities. This article provides an overview of research focused on the relationship between games and education. It highlights that participation in such games enhances both general and specialized skills and abilities among students, fosters a positive attitude toward learning, and deepens respect for history as a discipline. This approach allows for a theoretical understanding of facts grounded in historical context, helping to overcome the schematism and empiricism often associated with traditional school education. The methodology of simulation games enables students to explore the differences between the present and the past. These games encourage students to recognize and understand the unfamiliar realities of history, as well as the diverse ways of thinking that characterized people from different eras and cultures. The article concludes that well-designed educational games significantly increase the likelihood of achieving desired educational outcomes and contribute to the overall improvement of quality in higher education. The experiences shared regarding the use of role-playing or simulation games illustrate the potential of cultural-historical psychology as a valuable resource in history education.

Keywords: cultural-historical psychology, L.S. Vygotsky, personality-developmental approach, imitation game, historical thinking, motivation, subjectivity, involvement.

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Использование имитационных игр в обучении студентов-историков в парадигме культурно-исторической психологии: постановка проблемы

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В статье рассматриваются возможности повышения эффективности обучения с помощью инициации активности учащихся и мотивирования их к участию в обучении. Игровая методика направлена на повышение мотивации учащихся к изучаемому материалу. В основу осмысления материала положены идеи культурно-исторической психологии Л.С. Выготского. Она дает теоретическую основу для объяснения различий не только межкультурных психологических, но и межвременных психологических, поскольку позволяет изучать психологические явления в конкретных исторических, социальных и культурных контекстах. Отмечены поиски способов повышения мотивации, становления субъектности и субъектной позиции у учащихся. Приведены примеры использования диалоговых имитационных игр в обучении: исторические реконструкции, имитационные судебные процессы, культурное погружение, Reacting to the Past. Рассмотрены технологии их подготовки и проведения. Дается обзор работ, посвященных изучению связи между играми и образованием. Отмечается, что участие в подобных играх укрепляет общие и специальные умения и навыки у студентов, положительное отношение к учению, углубляет уважение к истории как науке. При этом создается возможность теоретического отношения к фактам на базе исторической конкретности, преодоления схематизма и эмпиризма в знаниях и мышлении, порожденных школьным образованием. Методика имитационных игр предлагает студентам возможность обдумать различия между настоящим и прошлым. Подобные игры побуждают учащихся распознавать и осмысливать незнакомую реальность прошлого и различные способы мышления людей прошлых эпох и других культур. Делается вывод о том, что хорошо продуманные обучающие игры повышают шансы на достижение намеченных результатов, способствуют повышению качества обучения в высшей школе. Описанный в статье опыт использования разыгрывания или имитационных игр демонстрирует перспективность использования культурно-исторической психологии как важного ресурса в преподавании истории.

Ключевые слова: культурно-историческая психология, Л.С. Выготский, личностно-развивающий подход, имитационная игра, историческое мышление, мотивация, субъектность, вовлеченность.

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Introduction

Serious problems in modern education are related to the lack of involvement and motivation of students to actively participate in the learning process. According to Girgin and Ramo [16], modern teaching methods contribute to maintaining the status quo among the young population. Lectures have been used at all levels of education: teachers acted as providers of information, and students as passive recipients. In this regard, teachers try to use new techniques and approaches to provoke students' activity and motivate them to participate in learning.

The main methodological condition for the effectiveness of training is to ensure a personal development approach, which consists of focusing the educational process on students and addressing their cognitive needs directly. Only in this case can students be motivated to successfully master the educational material, capture their attention and maintain unflagging interest. It is possible to ensure a truly high level of students' mental activity, an active actor's position in learning if they are, in a certain sense, creators of the events in which they are included and which they build.

General trends in the development of teaching methods are now gravitating toward game forms as the most effective and humane. The authors of the article have accumulated some experience in using game methods in teaching world history, the history of Asian and African

countries for students of history and regional studies, as well as general history of the state and law for lawyers.

Universities focus on training future specialists. The professions of history teacher, psychologist, international relations expert, lawyer and translator are public, for which social perception skills, the ability to correctly conduct a dialogue, understand and evaluate the personality and actions of others are very important. Active group teaching methods, especially such a form as dialogue simulation games, contribute to this in the best possible way. These may include historical reconstructions, which, like time machines, transfer students to past eras, giving them the opportunity to get acquainted with history first-hand. Students try on the role of historical figures in order to study their lives, actions and motivation. Let's also mention mock trials. Students act as prosecutors, lawyers, prosecution and defense witnesses, jurors and acquire critical thinking and public speaking skills. This may include the role-playing game "Cultural Immersion", during which teams of students compete in the best presentation of the cultural features, customs and traditions of the country they have chosen.

An interesting experiment in active learning focused on students has become widespread in the United States in many cases as part of programs for first-year students. It is called "Role-Playing Games. "Reacting to the Past" or RTTP games. This technology was developed by historian Mark Carnes from Barnard College. Such games have been included in the curricula of teachers of history, political theory, philosophy, psychological sciences, brain sciences, as well as English, French and Italian languages from about sixty colleges and universities across the country. National training seminars are held for them [28]. Feedback from teachers who use this role-playing game in their work is very complimentary. It is considered an effective tool, since it promotes more active involvement of students in the historical context that influenced the emergence of the ideas studied, and increases class attendance [17; 31]. American researchers note that students in various educational institutions become more engaged in class discussions, work more willingly in groups, and demonstrate improved skills in rhetorical presentation, critical thinking, and analysis. They also develop higher levels of empathy and a better understanding of the contingencies of human history [17; 27].

Research Methodology

We were inspired to write this article by the ideas of L.S. Vygotsky's cultural-historical psychology. It provides a theoretical basis for explaining not only intercultural psychological differences, but also intertemporal psychological differences, since it helps to study psychological phenomena in specific historical, social and cultural contexts. This concept emphasizes the importance of social interaction and cooperation in promoting learning and development and uses an interdisciplinary approach to understanding the psychological processes of the individual [4]. The ideas of the founder of the theory are actively developed by many scientists [9; 10; 19; 20; 24; 25]. L.S. Vygotsky's ideas also underlie theories of learning that are student-centered. He argues that the learning process will continue more effectively as a result of students' interactions with more knowledgeable peers or adults (e.g. a teacher). Vygotsky described human cognitive development as a "joint process"; this means that people's learning occurs through social interactions. According to his theory, the process of working, learning, and teaching should be carried out by the teacher holistically and implemented through authentic (or genuine) activities. Authentic activities should be based on real-life situations and meaningful to students. Students should also feel the need to study the subject [15]. In psychological science, there are searches for ways to increase motivation, develop subjectivity, and develop a subjective position in students. In this case, a subjective position is understood as an active and conscious attitude to the activities being carried out [5; 6; 7]. Thus, it is noted that in the tradition of cultural-historical psychology, the idea of cooperation between a child and an adult logically follows from the idea of the child's subjective position, thanks to which self-development mechanisms are launched, which contributes not only to the improvement of students' academic performance, but also to their cognitive and personal harmonious development. In the process of educational activity based on the reflexive-activity approach, there is, among other things, an increase in the success of educational activity as a whole and a sharp increase in educational motivation [7]. The problems of the relationship between education, development and health are studied with the support of the conceptual apparatus of the tradition of cultural-historical psychology, including the reflexive-activity approach [32]. The activity approach in our study is presented as the basis for organizing game activities in which students actively participate and learn. The game format encourages its participants to take the position of people from other eras, countries, cultures. It helps to place the cultural understanding of human psychology in specific historical and cultural contexts and think more dynamically and diachronically.

Activity-based learning improves social skills, and in this process the learner is in the position of an active subject and is cognitively and physically involved in the action. He can be the creator of the game, the organizer and the performer. By the way, this is how L.S. Vygotsky defined creativity — "the creation of new forms of behavior" [3, p. 46].

Recently, many researchers consider the so-called gamification as one of the active learning methods in the

educational process. Gamification is usually understood as the integration of game elements and game thinking into activities that are not games. The main idea of gamification is to stimulate motivation, behavioral changes, friendly competition and cooperation in various contexts [14].

When talking about gamification when it is implemented as an educational intervention, Landers [22] offers a set of theories divided into two categories: motivation theories and learning theories. Analyzing theoretical approaches to gamification resources in education, N.A. Astashova and co-authors note that gamification is a unique tool capable of motivating and directing educational activities, taking them to a new qualitative level [1, p. 22].

Game forms can help to learn business communication, because for productive communication it is important not only to be yourself, but also to understand the other person, to put yourself in his place, to enter his position, to learn the art of "being different". Active teaching methods assume the educational process to take place in conditions of group communication, which is especially important in the first year, when a team is being formed.

Researchers note that game activities can be considered as the main tool of personal development, as an experimental path to new ways of thinking and acting [1, p. 41]. When using a game, the role of a passive listener is replaced by the role of an active participant, and thanks to this, students become more relaxed and independent, they develop a positive motivation for learning, cognitive interests and abilities [20, p. 116].

Review of Research on the Use of Game-Based Methods in Education

There are a number of studies devoted to the study of the relationship between games and education. The beneficial contribution of game-based learning in general has been noted by most authors, especially with regard to cognitive outcomes. Cognitive outcomes refer to "knowledge structures that allow games to be perceived as artifacts that provide an opportunity to link knowledge-oriented activities with cognitive outcomes" [28]. Tasks designed as games and simulations are used to develop a wide range of cognitive skills, such as decision-making [23], knowledge acquisition, and content comprehension [1].

Games can be as effective as traditional teaching methods [25; 26]. They are aimed at improving students' concentration, engagement, academic performance, and/or reducing frustration and demotivation [13]. In addition, they are noted to strengthen students' creativity, interpersonal relationships, and cooperation [12]. The influence of gaming technologies on the development of logical thinking, attention, and the ability to work in a team, as well as to analyze any situation from different angles, is noticeable when studying any subject [2, p. 26]. The advantages of using games in education include motivation and competition, problem-based learning, collaborative learning, progress, and immersion [13; 22; 23].

The effectiveness of games is also noted not only in the cognitive, but also in the affective and behavioral aspects [30]. Several reviews have been conducted showing that games provide many opportunities for collaborative learning, increase interactivity and feedback between players, and change their behavior in the desired way. Thus, O.V. Rubtsova showed that role-playing experimentation allows one to transform an educational problem into a task that is personally significant for the student and ensures his emotional involvement in the learning process [8].

Collaboration is considered a basic element of the learning process [1]. At the same time, the role of the teacher is considered as an important factor in expanding the capabilities of groups in the joint creation of knowledge. The role of the instructor is described in the work of P. Lameras et al. [21], who provide conceptual and empirical data on how learning attributes and game technologies should be developed and implemented by teachers, especially with the aim of fully integrating them into lesson plans and the learning process as a whole. Summarizing a brief review of research on the use of game methods in teaching, we will agree with the statement of Christo and Darina Dichev about the need for theoretical and empirical research that can complement each other [15].

Description of experience using active group methods In our practice

We prefer to use the term "dialogue simulation games". Simulation games in classrooms are a synthetic type of educational activity. In its objective meaning, it is psychological preparation for future professional activities, developing students' cognitive abilities and practical skills. The game simulates some real collective activity and through this process, learning occurs.

Let's consider the technology of simulation games in more detail.

In game situations, it is possible to use specially developed positional-role structures, during the "playing out" of which interactions arise that activate the mental activity of the participants. In these conditions, the possibility of role distribution of intellectual responsibilities appears, there is a need to coordinate positions, develop a common solution, which become psychological conditions for developing the ability to correctly conduct a dialogue.

When choosing a topic for a simulation game, it is important to take into account that the situation proposed for playing out should be complex enough to stimulate the cognitive activity of the participants and their intellectual rivalry. Private, utilitarian goals (teaching specific skills and abilities; teaching interpersonal interaction associated with a professional role; updating a large amount of factual material during the game; forming certain ways of thinking, etc.) should be subordinated to more general goals of forming a creative, harmoniously developed personality.

Players must be psychologically prepared to accept roles, each participant must understand their social role and build a system of behavior accordingly. Everyone identifies with a character in the plot and acts in accordance with their ideas about him. This will ensure a sufficient degree of departure of the game participants from their natural life context and immersion in the game. Once the background of the "game" is explained, students need to meet and work outside of class to succeed in achieving their goals in the classroom.

Participation in the game involves various types of human motivation. In this case, the innate desire for competition, recognition and achievement is actualized. These aspects are part of the internal motivation that encourages students to progress and improve their academic performance. This will contribute to increasing the effectiveness of classes, stimulate independent work of students, help to more successfully overcome the internal inertia of the individual, destroy barriers that "freeze" their psychological potential, improve the psychological climate in the group. Players will be able to give free rein to their imagination and try their creative powers within the game situation.

An example of such a simulation game is a game developed for a practical lesson on the topic "The Emergence of Athenian Slave Democracy in the 7th-6th Centuries BC". Students are asked to act out the situation "The People's Assembly in Athens Discusses a Reform on the Elimination of Debt Slavery and the Removal of Debt Stones." All students in the group are divided into subgroups and prepare speeches on behalf of: a) Solon; b) Eupatrides (aristocrats); c) the trading elite; d) owners of craft workshops; d) wealthy peasants; e) the lower classes of the demos.

Everyone prepares a speech and send one or more delegatesfrom each subgroup to tell their position.. Using the literature provided, all participants become familiar with: the situation that preceded the popular assembly; the biography of Solon; the specifics of holding popular assemblies in Athens; the essence of the proposed reform; the characteristics of the social strata of Athenian society, and the political groups within it. Each participant in the meeting must understand the final goal, i.e. what he or she must achieve and what to preserve as a result of discussing the reform project. The game involves making a decision what to do, what to say?

The general goal of the participants in the assembly, speaking on behalf of Solon, the trade and craft circles and the wealthy peasants: to convince the participants in the assembly, using appropriate arguments, of the importance, timeliness and urgent need for the Athenian state of the proposed reform. They must: appeal to patriotic feelings; talk about the disastrousness for the polis of delaying the reform, which could be fraught with a revolutionary explosion; remind about the shameful situation when the citizens of Athens are in slavery to foreigners; worry about the decrease in the number of free citizens; talk about the danger of external invasion.

Representatives of the upper classes of the demos understand all the benefits of this reform for their social class and must actively support Solon. They must thank him for proposing specific measures that implement their interests.

Representatives of the lower classes of the demos must take a dual position. On the one hand, they are grateful to Solon for proposing debt forgiveness, the abolition of debt slavery and the redemption of slave debtors sold to foreign lands. They must tell of their hard lot, of how they are struggling in the clutches of debt, of the bitter farewell to loved ones. On the other hand, they must express the hope that Solon will not stop at the points proposed to the Assembly and will further redistribute the lands, since without this they see no prospects for improving their situation. They can also express fears that Solon, himself an aristocrat, will not go all the way.

The Eupatrides are the main opponents of the reform proposed by Solon, they see in it the danger of reducing their income. Their main goal is to discredit the reformer, recalling all the real and imaginary dark pages of his biography, to intimidate the Athenians with possible tragic consequences.

The participants of the game should take into account that usually only aristocrats spoke at the people's assembly. They were trained in eloquence, the ability to speak beautifully, figuratively, and with arguments. Therefore, speakers on behalf of the Eupatrides and Solon are advised to read the book "Orators of Greece" to familiarize themselves with the features of argumentation, with the typical metaphors that the speakers resorted to. A speech on behalf of an aristocrat should be especially close to the speech of a typical Hellene. The other participants may be less concerned about bringing their speech closer to Athenian realities, since the representatives of the social class on whose behalf they speak had no oratorical experience at all. But mentioning the names of the Greek gods, appealing to their will will still not be superfluous. A mandatory requirement for all participants in the game is that everyone must begin their speech by stating their Hellenic name, and those speaking on behalf of the Eupatrid must also state their father's name. For example: Isocrates, son of Lysias.

During a collective discussion of possible solutions to a problematic task set before a group, a discussion arises. In this case, various, often contradictory, solutions may be presented. Playing out the situation also turns into a lively dispute, a real discussion, a verbal duel of the participants. This lively game of intellects promotes the development of social and communicative skills, teaches a quick reaction to new unexpected arguments, helps to practice analyzing and clarifying concepts, learn to argue and persuade, negotiate, defend one's point of view. It forms in students the ability to play the role of another person, to see themselves from the position of a communication partner, guides them to plan their own speech behavior and the behavior of the interlocutor, develops the ability to control their actions. The experience of conducting the game with several groups of first-year students showed that students, as a rule, master the positions of the parties well and actively defend their position. However, they are less successful in actualizing the real situation of the meeting in Athens in the 6th century BC. For the teacher, the main difficulty of the stage of playing out situations is the low predictability of events that unfold during the group's work.

At the third stage of the lesson, the results are summed up. In the final word, the teacher evaluates the success of the tasks and gives grades. During the analysis of the game, shortcomings in the technique of playing out the situation are discussed, specific errors related to the subject material are identified, and opportunities for more successful actualization of the studied reality are indicated. It is significant that the intellectual activity of most students remained high in several subsequent seminars of the usual type, and the simulation game here acted as an emotional impetus. That is, the changes that occurred in the group during the simulation game were transferred to other conditions of activity.

The game "The National Assembly in Athens..." promotes the development of historical thinking in students, helps to create a "living" picture of the past as a basis for revealing the social process. At the same time, it creates the opportunity for a theoretical approach to facts based on historical concreteness, overcoming the schematism and empiricism in knowledge and thinking generated by school education. The ability to reconstruct a past culture and system of thought and to understand that it differs from current ideas eludes most students throughout their studies. And the methodology of simulation games offers students the opportunity to consider the differences between present and past styles of thinking, since the game forces them to abandon arguments that would be made outside the historical period in which the game takes place. In a standard first-year history course, students do not receive an experience that would force them to solve questions related to what it means to "think historically." And the game being analyzed creates a situation in which its participants encounter these problems, try to develop arguments put forward by people in a completely different time, in a different place and in a different culture, and respond to them.

Another example of a simulation game is a game developed for a practical lesson on the topic of "The Rise of the Athenian Slave Democracy in the 5th Century BC". Students are asked to act out the situation of "Press Conference with Pericles". The task is given: "Let's imagine that with the help of a time machine, the first strategist of Athens in the 5th century BC Pericles came to our institute to meet with students. After reading the necessary literature, prepare questions that would take into account the specifics of the press conference." A microgroup of 3—4 people is selected from the study group, which is preparing to take part in the press conference on behalf of Pericles and his press secretaries.

To illustrate certain arguments, positions and facts, it is advisable to use video clips, photographs, slide shows, diagrams, graphs, charts prepared by Pericles' press secretaries and the participants in the press conference. This makes the game process more exciting and creative for communicators, and more attractive and visual for listeners.

Experience using this method has shown that this form of conducting a lesson causes a great emotional upsurge in students and their high activity. Usually students ask from 60 to 80 questions, and sometimes even 130.

The protocols of the game contain more than 500 different questions about the biography and political activity of Pericles, about the essence of Athenian democracy, about the functions of the People's Assembly, the Council of 500, the elective court, about the features of their activities, about elective positions, about the civil reform carried out by Pericles, about the features of the Athenian economy and culture, about the inheritance of property and others.

In addition to the specified game situations, the author of the article developed and used in the work scenarios of the simulation games "The Trial of Mao Zedong", "The Trial of Heinrich Schliemann", the "Cultural Immersion" technique. The scope of the article does not allow us to describe these games in detail. Let us say a few words about the use of the "Cultural Immersion" technique. Students, divided into subgroups, study the culture, customs and traditions of the country they have chosen. During the lesson, the leaders of the subgroups give a welcoming speech on behalf of a specific historical figure or a collective character (Janissaries, Taipings, Samurai, etc.). Then his fellow students introduce the specific features of the country's culture to the audience in the most entertaining way possible. The script, among other things, includes quizzes dedicated to the history and culture of the country. Such game activities, among other positive aspects, increase the cultural sensitivity of the students.

The use of active group teaching methods, including simulation games, which ensure the development of students' cognitive interests and their active position in learning, helps to increase students' intellectual activity and also contributes to solving the problem of "reviving" history. Simulation games make history as a subject not only descriptive and explanatory, they also help to look at the past centuries through the eyes of the people who created this history. Such games encourage students to recognize and comprehend the unfamiliar reality of the past and the various ways of thinking of people from past eras and other cultures.

Conclusion

Thus, the abundance of literature discussing the use of game methods in teaching indicates the relevance of this problem. However, the scientific field is too vast and requires further study. In general, well-designed educational games increase the chances of achieving the intended results, contribute to the growth of the quality of education in higher education. In general, we can say that the use of game methods creates a complex multifaceted educational environment and contributes to more active involvement of students in learning, since games add variety to educational training modules. The experience of using role-playing or imitation games described in the article demonstrates the prospects of using cultural-historical psychology as an important resource in teaching history.

Feedback from students who assessed their experience of participating in game situations is a very strong argument in favor of using simulation games. Such feedback was collected when summing up each lesson. They write that it made them think about the very essence of the concept of "democracy", about how to conduct a discussion, choosing arguments that correspond to the era and culture. And in one of the recent conversations with our graduate, who took part in a press conference on behalf of Pericles, he noted that this positive experience is very helpful to him now in his work as a deputy of the city maslikhat of the city of Uralsk. He actively works with voters, often makes deputy inquiries, relying on the opinions of the citizens who elected him. It seems to us that the experience gained allows us to see further prospects for research that can be carried out on the basis of the experience gained. And one of such perspectives lies precisely in the development of historical thinking, by means of immersion in the corresponding epochs of history and culture, creating the possibility of a theoretical attitude to facts based on historical concreteness, overcoming schematism and empiricism in knowledge and thinking. Another perspective is the creation of conditions in the simulation game for the development of the subjective position of students, since inclusion in the game presupposes a conscious and active attitude to the material being studied.

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HISTORY OF SCIENCE
ИСТОРИЯ НАУКИ

Psycho-aesthetic Concept of A.V. Bakushinsky and Periodization of Human Ontogenesis

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Interest in the work of A.V. Bakushinsky stems from the significance of his psycho-aesthetic concept for contemporary developmental psychology. This concept outlines the stages of mental development associated with a child's perceptual capabilities within the context of global fine art. The article presents an argument supporting A.V. Bakushinsky's commitment to the cultural-historical approach in evaluating ontogenesis. A.V. Bakushinsky illustrates the parallels between the means of global fine art and the use of artistic symbols by children in their visual activities, following the developmental patterns of the child's psyche. The article also offers a comparative analysis of the approaches taken by A.V. Bakushinsky and A.V. Zaporozhets. They assess the evolution of perception. The similarities and differences in the conclusions of A.V. Bakushinsky and O.M. Dyachenko regarding the formation of images as symbolic means in ontogenesis are examined. A.V. Bakushinsky's ideas hold practical significance for elucidating the perception of the diversity of information, which the scientist called the "multiplicity of the world." The findings of this study can be used by specialists in the design and evaluation of a developmental educational environment.

Keywords: cultural-historical psychology; psycho-aesthetic concept; the formation of a child's perception; symbolic function; means of world art; periodization of human ontogenesis.

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Психоэстетическая концепция А.В. Бакушинского и периодизация онтогенеза

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Интерес к творчеству А.В. Бакушинского обусловлен значением его психоэстетической концепции для современной психологии развития. В данной концепции показаны этапы становления психических средств, связанные с возможностями восприятия ребенка в контексте мирового изобразительного искусства. В статье приводится аргументация в пользу приверженности взглядов А.В. Бакушинского культурно-историческому подходу Л.С. Выготского в оценке онтогенеза. Параллели средств мирового изобразительного искусства и использования детьми художественных символов в изобразительной деятельности показаны им в логике закономерностей развития психики ребенка. В статье предложен сравнительный анализ подходов А.В. Бакушинского и А.В. Запорожца в оценке развития восприятия. Выявлены сходства и различия в выводах А.В. Бакушинского и О.М. Дьяченко относительно становления образа как символического средства в онтогенезе. А.В. Бакушинский обратил внимание на то, что в живописи есть чередование изобразительных стилей; в общих чертах это чередование сводится к смене хаотичного упорядоченным, гротескного умеренно-спокойным. Такую смену изобразительных стилей он обнаружил и в детских рисунках в разные периоды детства. Обнаружено чередование циклов восприятия, когда ребенок то стремится к структурированию познаваемой им множественности мира, то принимает его хаотичным. А.В. Бакушинский сравнил это чередование сменяемостью стилей в живописи, когда экспрессионизм вытесняется импрессионизмом, барокко — классицизмом. Идеи А.В. Бакушинского имеют сегодня прикладное значение для объяснения восприятия многообразия информации, названного ученым «множественностью мира». Результаты исследования могут быть использованы специалистами в проектировании и оценке развивающей образовательной среды.

Ключевые слова: культурно-историческая психология, психоэстетическая концепция, становление восприятия ребенка, символическая функция, средства мирового искусства, периодизация онтогенеза.

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Introduction

In our opinion, by addressing the history of psychology, we not so much resist oblivion, but rather seek a new opportunity to solve methodological problems of psychology. In this context, the psychological ideas of Anatoly Bakushinsky appear to be more than just undeservedly forgotten, but to be unfairly ignored, despite their resource of explaining, from a new perspective, the development of mental tools in ontogenesis through the prism of artistic techniques of world art. This idea is extremely relevant for developmental psychology and modern educational practices, as we are still unclear about the instrumental effects of the influence digitalization has on the child development. Bakushinsky focused his analysis of the psyche formation on the assessment of the world art techniques that a child is able to use as its mental tools.

Anatoly Bakushinsky is known as an art critic, organizer of folk crafts and teacher, actively engaged in the theory and practice of aesthetic education. At the State Academy of Artistic Sciences , created in 1922, he headed the Physical-Psychological Department. In those years, in the humanitarian circles, art history and psychology conducted active communication demonstrating real collaboration (Zhdan, 1998). The famous scientists Lev Vygotsky, Aleksei Losev, Nikolay Zhinkin and Moses Rubinstein took part in the Seminarium held by the aforementioned Physical-Psychological Department. Analyzing the work of Bakushinsky, Natalia Poleva identifies three areas of his art criticism: definition of the periods and phases of mental development, psychology of artistic perception and methods of artistic education (Poleva, 1999). During the years of collaboration with the State Academy of Artistic Sciences, Bakushinsky wrote a number of works devoted to the analysis of children's creativity (Bakushinsky, 1923; Bakushinsky, 1924; Bakushinsky, 1925). Psychology is undoubtedly interested in the most important aspect of Bakushinsky's work, in his research of the child's psyche development in interaction with fine arts, which the scientist himself directly described in the following way: "I'm establishing parallelisms in the typical development of a person, individual and generic, as well as in the character and features of the artistic form conditioned by this development, individual and generic" (Bakushinsky, 1925, p. 3). In our opinion, these parallels are much broader and more multifaceted, representing the author's systemic vision, covering both the features of the child's cognitive sphere and the resource of its use of symbolic means of art.

Anatoly Bakushinsky's fundamental work "Artistic Education. An Experiment in Research Based on Spatial Arts," published almost a hundred years ago in 1925, is an example of a cultural-historical interpretation of ontogenesis (Bakushinsky, 1925). This work provides a generalized understanding of the development of mental tools in childhood, the result of Bakushinsky's years of experience in the psychological analysis of children's drawings. As an artist, he described his study of child psychology as follows: "I study the development of the child's psyche, the ways in which it perceives the world, its creative expression, and, as a function of these factors, the artistic form in its evolution" (ibid., p. 5). At the same time, Bakushinsky openly admitted that he was a supporter of the biogenetic theory, according to which ontogenesis repeats phylogenesis. However, a thorough analysis of his research results proves that his psycho-aesthetic theory is a vivid expression of the cultural-historical understanding of ontogenesis. Having studied the formation of artistic means in world art, Bakushinsky introduced an original interpretation of the instrumental component of the child's psyche. His psycho-aesthetic theory shows that at each stage of their development, children, due to the cognitive capabilities of their perception process, are able to use certain artistic means of world culture. As a nod to the biogenetic law, is the part of his theory where Bakushinsky describes parallels between the individual and the generic aspects. For example, according to the artist, motor-tactile perception, characteristic of early childhood, is inherent in the generic and ancient culture, using such artistic means as primary ornament, stereotype, composition made up of several objects, complex frieze and color. Perceiving an object, a young child explores it with its hands, thus synthesizing a generalized image. According to Bakushinsky, artistic techniques of impressionism would be accessible to the child's perception at later stages, since light, in his opinion, required more advanced cognitive capabilities than motor-tactile perception.

Our analysis of Bakushinsky's psycho-aesthetic theory shows that the author considered the means, the instrument of psyche, to be the determining source in the child development. Bakushinsky's theory focuses precisely on the instruments in explaining ontogenesis, which emphasizes his commitment to the ideas of the cultural-historical approach. It is no coincidence that Alexei Leontiev, discussing Vygotsky's work, noted that the creator of the cultural-historical theory initially called it first 'instrumental', then 'cultural', then 'historical' (Leontiev, p. 41).

Bakushinsky gave the following definitions of his psycho-aesthetic theory: "ways of perceiving the world," "artistic content," "artistic form" and "design of the world." He wrote directly that for him the functional connection between the ways of perceiving the world and its creative design with artistic form and artistic content in art was becoming increasingly clear (Bakushinsky, 1925, p. 125).

The conceptual nature of Bakushinsky's views lies in the fact that he found ground for explaining the entire ontogenesis, not a separate fragment of development, relying on the means as an instrument of the psyche. "The individual creative evolution of a child and a cultural or low-cultural adult", — he wrote, "is an organic series with typical similar phases, their duration depending on age and the level of their general development. However, neither age nor cultural level essentially change either the nature of the phases or their sequence" (ibid.).

An additional and very interesting argument in favor of Bakushinsky's commitment to the cultural-historical conception is his description of the internal dynamics of ontogenesis. As we know, for Lev Vygotsky, the internal movement of development was the presence of crises. One recalls his classic metaphor that if crises were not discovered empirically, they would have to be invented theoretically (Vygotsky, 1984).

Bakushinsky also explained development by objective internal processes immanent to the psyche, in particular, by a special rhythm. In one period of its development, the child's perception accepted the spontaneity

and chaos of the world; while in the next period, it strove to structure and organize the perceived space. This tendency, according to which the psyche alternately put the world of its existence in order, while later allowed for the emancipation and chaos of this world, according to Bakushinsky, represented a special rhythm of the dialogue between the child and the world. Then, the logic of the regulation development in ontogenesis was seen in a new way, when, for example, the arbitrariness of a primary school student was replaced by adolescent love of freedom.

When Vygotsky assessed the evolution of children's drawings, he also distinguished periods, in which the rhythm of alternation, indicated by Bakushinsky, was visible. Thus, Vygotsky distinguished four periods of children's drawing development: the first stage was "scribbles", the second stage was "diagrams and lines", the third one was the stage of a plausible drawing, and the fourth was the stage of a plastic image, where there was perspective and light (Vygotsky, 1997, pp. 63—64). In general, Vygotsky noted the special value of drawing in the development of mental resources and imagination. "The main trend of the child's evolution is that the role of vision in mastering the world begins to increase, from a subordinate position it passes into a dominant one and the motor-tactile apparatus of the whole child's behavior is subordinated to the visual one" (Vygotsky, 1991, p. 72). Vygotsky presented the formation of children's drawing means as a "struggle of two opposing attitudes" (ibid.). This is the similarity of Vygotsky and Bakushinsky's views on the formation of ontogenesis of means not as a linear, but as a dialectical process.

If the unity of the world is perceived through contemplation, multiplicity requires emotions and will: "rationalism" collides with "romanticism", "impressionism" with "expressionism". Thus, Bakushinsky saw the functional interaction of man and the world as an alternation of "...the law and the norm of a human over the superhuman, over the shapeless mass of impressions" (ibid., p. 102). This attribute of the rhythm of unity and multiplicity, noticed by Bakushinsky in the evolution of world art, where expressionism with its brightness of a variety of colors is replaced by impressionism, where light organizes the unity of the world through perspective, was used by Bakushinsky to interpret the alternating ways of the child's world perception (Bayanova, 2009).

Bakushinsky's idea about the rational perception of the world by adults is very timely and interesting, it is about the complex diversity that reigns around destroying unity, so a special effort is required to maintain this unity of the world. He wrote about the crisis of modern culture, when the world disintegrated in individual consciousness, atomized to become multiple again (Bayanova, 2009). "The modern highly developed personality, rooted in the tradition of post-Renaissance culture," he wrote, "loses all ground. Alien, hostile forces of titanic extrapersonal tension in the area of material and spiritual processes that build up modern life in its orientation toward the future, split and break up the personality with a mass of internal growing contradictions. The personality becomes increasingly powerless in its desire to grasp the unity of the world through a creative act" (ibid., p. 133). Many modern-day scientists, working in the field of philosophy, psychology and pedagogy, write about the information space, eclecticism and diversity, which requires special efforts from a person in the perception and selection of knowledge. The perception of information today is one of the complex humanitarian problems, its emergence was anticipated by Bakushinsky. The diversity and expanding volume of information increasingly complicate the possibility of its structuring and selection, probably giving rise to difficulties in the dialogue of a person with the perceived world.

Child's perception development: From touch to contemplation

For Bakushinsky, perception was a cognitive process that determined development. He identified several stages formed by the patterns of interaction, developed within each stage, between the cognitive capabilities of perception and the tools, used by the child in learning about the world.

In Bakushinsky theory, the first stage in the development of perception is the period of the motor-visual installation (from birth to the age of three). The author calls this stage pre-pictorial, the phase of a disjointed scheme. The turning point here is the age of four months, at which time the primary chaos of the external world for the child is replaced by images of specific things. Muscular-cutaneous sensations are supplemented by visual ones, and this process allows the creation of an image of a thing with its constant properties. At this stage, the child, according to Bakushinsky, is an "egocentrist", since "the world exists only for him/her" (Bakushinsky, 1925, p. 18).

Among Russian psychologists, who studied the development of the perception process in ontogenesis, Alexander Zaporozhets is the most well-known. He argued that a child's perception is connected with its sensory learning and acquisition of sensory standards developed by society — the color spectrum, the system of geometric figures, the generally accepted scale of musical sounds, etc. "Such standards," wrote Zaporozhets, "become operational units of perception, mediate the child's perceptual actions, just as its practical activity is mediated by a tool, and its mental activity by a word" (Zaporozhets, 1986, p. 113). Zaporozhets, like Bakushinsky, associated the creation of an object image with child's physical interactions with a thing, when "simulation" and "modeling" of those material and ideal objects with which the child acts occurred, which led to the creation of adequate ideas or concepts about these objects (Zaporozhets, 1986). Perception, according to Zaporozhets,

was functionally connected with specific orienting- exploratory, perceptual actions.

In line with these ideas, Bakushinsky pointed out that at the earliest stages of the perception development, a child used ornament and believed that this was nothing more than "mastering a surface with the help of rhythmic movement on it" (Bakushinsky, 1925, p. 59). The idea of the connection between the movement and the creation of an image in early childhood is quite implicit today, presented in various methods of teaching fine arts to children.

The second stage in the development of perception, identified by Bakushinsky, was the period of the visual-motor integration/ 'eye-hand coordination (from three to five or six years). The author called this period the phase of the scheme and semi-scheme. At this age, the child's egocentrism was overcome, "... in the process of active cognition of the world, in the dynamic experience of the results of this cognition, it forgets about itself. All its cognition is directed at external objects — things, later — at their interrelation, even later — at their qualitative and quantitative changes" (Bakushinsky, 1925, pp. 18—19).

Zaporozhets noted a qualitative change in the child's perception as early as from the second year of life. Thus, taking into account the results of his experimental studies, he wrote: "At this genetic stage... the images of perception lose the globality and fragmentation that were characteristic of the previous stage, at the same time acquiring a clearer and more adequate structural organization of the perceived object. So, for example, in the area of form perception, a general contour configuration gradually begins to stand out, which, firstly, distinguishes one object from another, and secondly, determines some possibilities of their spatial interaction (approaching, overlapping, grasping one object by another, etc.)" (Zaporozhets, 1986, p. 115).

Bakushinsky noticed that between the ages of 3 and 6, "two-dimensional spatial representations" were formed, owing to them the child developed the ability to comprehend in visual perception "...the textural richness of matte surfaces, the shine of roughness, the smoothness of the perceived surface" (Bakushinsky, 1925, p. 22).

Referring to the research by a number of authors, Zaporozhets noted a qualitative change in the perception of a child at the age of 3—7 years, the age range corresponding to preschool childhood, when children "...develop complex types of visual analysis and synthesis, the ability to dismember a visible object into parts and then combine them into a single whole, before such operations are implemented in practice. Accordingly, perceptual images of form acquire new content. In addition to further clarification of the object's contour, its structure, spatial features and relationships of its constituent parts begin to stand out, the things to which the child previously paid almost no attention" (Zaporozhets, 1986, p. 115).

The third stage of perception development, described in Bakushinsky's psychoaesthetic theory, is the period of visual attitude (from 10—12 to 14—15-year olds). Pointing to the distinctive features of this stage, Bakushinsky called it the phase of individual image, expression of relations. In general, it is noteworthy that Bakushinsky believed that the development of a child's perception was structured in such a way that the visual element displaced the motor element in him/her. At the age of 15—16 to 19—20, the perception of a young man became the same as that of an adult. Rationalism of perception suppressed impressionism and expressionism, characteristic of the perception of the previous stages.

Following Bakushinsky, Zaporozhets pointed to qualitative changes in the nature of perception, as reflected in his generalizations based on experimental studies: "The available experimental data suggest that at this stage the externally orienting-exploratory action turns into an ideal action, into the movement of attention across the field of perception. Some features of 'ideal' perceptual actions are highlighted by the studies dealing with the perception of a stabilized image" (Zaporozhets, 1986, p. 118). Characterizing the later stages of the perception development, Zaporozhets, pointed out that "...children acquire the ability to quickly, without any external orienting-exploratory movements, recognize certain properties of objects, distinguish them from each other, discover connections and relationships between them, etc." (Zaporozhets, 1986, pp. 117—118).

For Zaporozhets, the ontogenesis of perception depended on the nature of practical activities. It may seem that according to Bakushinsky, perception developed spontaneously. However, this is not entirely true. Here, we rather discuss the similarities in the assessment of perception in the conclusions made by Zaporozhets and Bakushinsky. However, the paths leading to these conclusions were different. Thus, Bakushinsky formulated his conclusions mainly on the basis of his observations and analysis of children's drawings, while Zaporozhets — on experimental studies (Dubovis, Khomenko, 1996).

Mental means as a product of transposition of art symbols

Olga Dyachenko considered culture to be a source of instrumental amplification of the child's imagination. Dyachenko pointed out that the process of mastering the means "... can occur through interaction with the objects of universal culture that are created by the power of imagination, as well as through the development of the symbolic function in various types of children's activities that they master with the help of an adult who conveys to them the forms and methods of 'signifying' reality" (Dyachenko, 1988, p. 59). The similarity of Bakushinsky and Dyachenko's views in the assessment of instrumental means is manifested in the fact that both authors considered these means to be developing in on-

togenesis. Thus, Dyachenko proposed her periodization of imagination, in which the logic of development was associated with extra-subjective markers in the same way as Bakushinsky believed it to be. This periodization suggested three stages of development. Describing the imagination of 2.5 to 3- year-old children, Dyachenko noted that at the first stage, their imagination was connected from the very beginning with the use of symbols (Dyachenko, 1988, p. 55).

When generating the idea of an imaginary product, a specific feature of using an image was constructing it by the action of "objectification". Separate impressions from reality were completed to make a certain objective whole, occupying a central position in this whole. For example, while finishing the drawings of indefinite images, children turn a square into a house, a television, a doghouse, etc. (Dyachenko, 1988, p. 56).

At the third stage, for 6—7-year-olds, the possibilities of choosing these techniques were directly related to their learning characteristics, primarily to the way they mastered the culture of play and the elements of artistic creativity during their preschool childhood (ibid., p. 57). Examining Dyachenko's picture of the imagination means evolution, we clearly see how the symbols, used by children in their preschool childhood, undergo transformations. These changes are not spontaneous, but are related to children's cognitive capabilities and an inseparable connection between the child and the culture that provides them with a resource of instrumental means.

A comparative analysis of the child's processes of perception and imagination development theories, proposed by the Russian psychologists Alexander Zaporozhets and Olga Dyachenko, and the psychoesthetic concept of Anatoly Bakushinsky allows us to see how much the child's psyche is instrumentally determined by the cultural and historical context. Bakushinsky offered a new perspective on assessing ontogenesis, on its being determined by external circumstances represented by culture. With attention to the history of psychology in university education noticeably fading, we should emphasize the importance of interest in texts written in the historical past, which is not at all an excessive and idle activity (Zhdan, 2021). Lev Vygotsky said it very well: "Modernity is too stingy about harvesting ideas. Everyone somehow seems to be too confident about knowing everything" (Vygotsky, 2017, p. 47). Bakushinsky's psychoaesthetic concept essentially offers one of the versions of assessing ontogenesis, where the formation of perception and methods of designing perceived images occur in a certain sequence. The holistic picture of the psychoaesthetic concept is presented through the relationship between the stages of ontogenetic development and the techniques of world fine arts (Table 1).

Bakushinsky's psychoaesthetic theory is based on the interrelationship between the modes of perception, the stages of world art, artistic techniques and conceptualization of the world (Bayanova, 2009). According to this theory, ontogenesis is determined by the instrumental capabilities of the psyche, formed in the process of perception. It is the interrelationship between this basic function at the origins of cognition with cultural images that underlies the argumentation of Bakushinsky's psychoaesthetic theory.

Several bases can be distinguished in determining ontogenesis. Firstly, the causes of development can be internal. If we recall the well-known periodizations of mental development, most of them explain the source of development based on internal factors. Thus, according to Z. Freud, the stages of development are determined by sexual energy and its localization in the body. The development of intelligence, according to J. Piaget, is determined by biological maturation, which is also related

Table 1

Psychoaesthetic concept of ontogenesis(according to Bakushinsky)

Stages of "general mental development"	Means of perceiving the world	Stages of world art ("artistic content")	Basic pictorial techniques ("artistic form")	Trends in the design of the world
Childhood	Motor-tactile attitudes	Tribal culture - Antiquity	***Primitivism*** *(Primary ornament, stereotype).* ***Expressionism*** *(Contrasting colors, sharp lines, rough brushstrokes, deformation of objects, composition of several objects, complex frieze, color)*	Unity of the world
Adolescence	Visual-motor attitudes	Barbarian culture	***Impressionism*** *(Use of light, chiaroscuro, absence of sharp lines, thin brushstrokes)*	Plurality of the world
Youth age	Visual attitudes	Medieval culture	**Baroque** (*Contrast, dynamism of images, combination of reality and illusion, expression, grandeur of images*)	Unity of the world
Adulthood	Thinking	New time	**Classicism** (*Moderation, harmony, academicism, romanticism*)	Plurality of the world

to internal determination. P. Blonsky's periodization is known to use the fact of the appearance and change of teeth as an objective criterion.

Secondly, the interaction of the child and the environment is defined as the source of development. This approach is a fundamental thesis of the cultural-historical theory, in which the social situation of development, as a specific system of relations between the child and the surrounding world, determines the emergence of new psychological formations. In the psychosocial theory, proposed by E. Erikson, the formation of personality is determined by its conflict with the environment. In the process of ontogenesis, under optimal environmental conditions, the personality acquires hope, will, purpose, confidence, loyalty, love, care and wisdom. Finally, the third circumstance, explaining the source of ontogenetic development, is external factors independent of the child. It was the external factors, by which the periods of development are determined, that Bakushinsky explored in his psychoaesthetic theory. In connection with the analysis of Bakushinsky's psychoaesthetic conception, the ideas of organizing children's educational space, which have been developed in recent years, are seen in a new way, highlighting an important place given to the special formation of the subject environment. Here, we take into account the educational environment as a component of the socio-cultural environment, which is a complex system including the integrity of specially organized psychological and pedagogical conditions for the development of the individual.

The ideas of the cultural-historical conception about the importance of environment in the development of the child's psyche, are further developed with the aim of creating a space for children's self-realization (Veraksa, 2018). Undoubtedly, the subject-spatial environment is a necessary condition for the child development. This idea is supported by the postulates of the cultural-historical theory. The importance of instrumental amplification through the interiorization of cultural instruments — the means of world art, is also highlighted by Bakushinsky. However, the spatial environment, being a necessary condition for development, remains an insufficient basis for it. It is the space of children's self-realization, as a necessary condition for their development in ontogenesis, that allows us to shift the focus of psychology from the sphere of the necessary to the sphere of the possible (Ivanchenko, 2011). In the context of creating a subject-developing environment and a space for children's self-realization, the views of Anatoly Bakushinsky enable us to understand ontogenesis in a new way.

Conclusions

1. The views of Anatoly Bakushinsky represent a systemic theory of psychoaesthetic evolution based on the parallelism in the stages of the ways we perceive the world and the stages of world art development, its artistic content and artistic form. Bakushinsky presented the interaction of man and culture in terms of ontogeny.

2. Bakushinsky's psychoaesthetic theory consists not only in identifying parallels between autonomous systems (the individual development of a child and the formation of art), but also in revealing the possibilities of mastering the means of art as tools of the psyche. In cultural-historical psychology, one of the key points in arguing the cultural determination of mental development is precisely the process of mediation formation.

3. The child's knowledge of the world is based on the process of perception. The methods of perception are associated with the techniques of fine arts, where expressionism is replaced by impressionism; the contrast and dynamism of images are replaced by moderation and harmony. The alternation of techniques of fine arts, used in the perception of the objective world, is projected onto the structuring of this world, where order is replaced by chaos.

4. Bakushinsky was the first to demonstrate the possibility of analyzing ontogenesis through external markers, quite clearly presented in fine arts. Each stage of ontogenesis initiates the use of certain tools, appropriated by the child and based on the capabilities of its cognitive sphere.

5. A comparative analysis of the views of Lev Vygotsky, Alexander Zaporozhets and Olga Dyachenko in the context of Bakushinsky's psychoaesthetic concept reflects the unity of the methodological approach to the assessment of mental means in ontogenesis.

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Zagorsk Experiment and the Fate of the Scientist. In Memory of A.V. Suvorov (1953—2024)

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The article, based on a study of scientific materials, examines the activities of Alexander V. Suvorov (1953—2024), a Doctor of Psychology, Professor, and the world's only deafblind psychologist, researcher, teacher, philosopher, and poet. His biography is inextricably linked to the study of deafblind individuals in our country, particularly through an experiment involving the training of four pupils from the Zagorsk boarding school at the Faculty of Psychology of Moscow State University from 1972 to 1977. Educating deafblind individuals in the USSR required long-term efforts from defectologists, teachers, and psychologists. The establishment of a boarding school for deafblind children in Zagorsk in 1963 significantly improved the circumstances for this group of individuals, providing them with pathways to full development, social and professional adaptation, and creative self-expression. Four graduates of the Zagorsk boarding school practically validated the scientific theories of Vygotsky, Sokolyansky, Meshcheryakov, and Ilyenkov. The biography of A.V. Suvorov, who made a unique contribution to the development of typhlosurdopsychology as a branch of special psychology, is particularly noteworthy. The scientist was especially interested in the social environment of deafblind individuals, the nature of self-realization, and the sometimes complex relationships they developed with sighted and hearing individuals.

***Keywords*:** dysontogenesis, typhlosurdopsychology, deafblind children, joint creative activities, inclusive education.

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Загорский эксперимент и судьба ученого. Памяти А.В. Суворова (1953—2024)

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В статье на основе исследования научных материалов рассматривается деятельность Александра Васильевича Суворова (1953—2024), доктора психологических наук, профессора, единственного в мире слепоглухого психолога, педагога, философа и поэта. Его биография неразрывно связана с экспериментом по обучению четверых воспитанников Загорского детского дома на факультете психологии МГУ с 1971 по 1977 г. До этого периода известны были только отдельные случаи достижения слепоглухими высокого уровня интеллектуально-культурного развития (Е. Келлер, США, О.И. Скороходова, СССР). Такие результаты считались исключениями и относились в большей степени к категории случайного сочетания различных благоприятствующих факторов. Именно поэтому обучение слепоглухих в СССР потребовало длительных усилий специалистов в этой области — дефектологов, психологов, педагогов. Открытие в Загорске детского дома для слепоглухих детей в 1963 г. изменило положение этой группы инвалидов, указав им путь социальной и профессиональной адаптации, самореализации, творческого самовыражения. Четверо выпускников детского дома на практике подтвердили правильность научных взглядов Выготского, Соколянского, Мещерякова, Ильенкова. Особенно выделяется биография А.В. Суворова, внесшего свой вклад в развитие тифлосурдопсихологии как отрасли специальной психологии. Больше всего ученого интересовало социальное пространство слепоглухого человека, характер его самореализации, складывающиеся порой драматические отношения со зрячими и слышащими. В настоящее время результаты его исследований требуют переосмысления применительно к психологическим и педагогическим задачам общего образования, ставшего инклюзивным.

Ключевые слова: дизонтогенез, тифлосурдопсихология, слепоглухие дети, совместная творческая деятельность, инклюзивное образование.

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Introduction

On January 26, 2024, in Moscow, our colleague, Alexander V. Suvorov, Doctor of Psychology, Professor of Mowcow State Pedagogical University, and the world's first deafblind psychologist, teacher, philosopher, and poet, passed away at the age of seventy. He had a hard life, full of trials and creative achievements. He was born

in 1953 in Frunze as a completely healthy child. By the age of four his eyesight had sharply deteriorated, and by the age of nine his hearing had declined. Later, he was diagnosed with Friedreich syndrome, a form of congenital spinal cord abnormality that confined him to a wheelchair in the last years of his life. His life was largely shaped by his blindness and deafness. In 1964, he was fortunate to be enrolled in a boarding school for deafblind children in Zagorsk (now Sergiev Posad), which had been opened a year earlier thanks to the efforts of Alexander Meshcheryakov, an outstanding psychologist and student of Alexander Luria. He also continued the ideas of Ivan Sokolyansky.

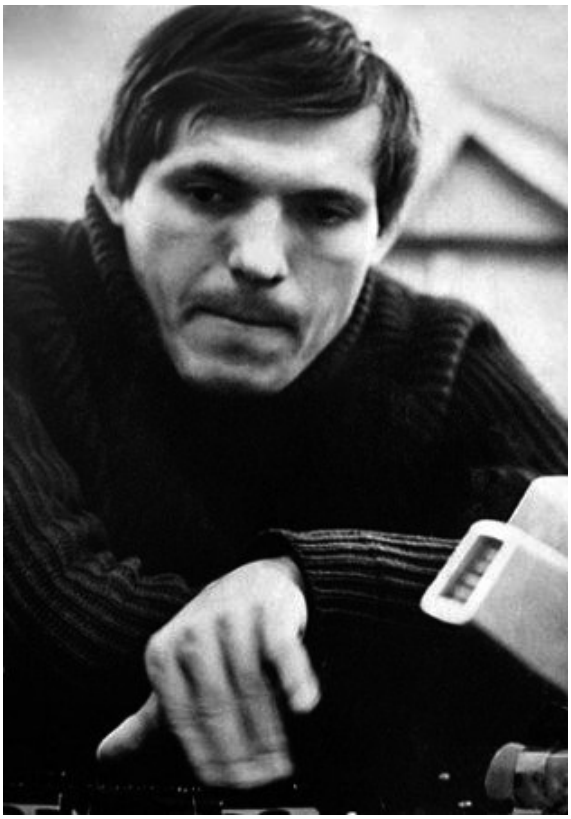

Fig. 1. A.V. Suvorov

Alexander Suvorov as a scientist and teacher

The wealth of theoretical and experimental data accumulated by Professor Ivan Sokolyansky laid the groundwork for the special educational institution for deafblind children that was opened in Zagorsk in 1963. In the 1920s, Sokolyansky had operated a small school-clinic for deafblind children in Kharkov, and a similar group had been headed by Augusta Yarmolenko in Leningrad, but almost all the children died during the war. The opening of the Zagorsk Boarding School enabled the experimental initiatives with deafblind children to be continued and implemented more broadly in long-term educational practice. This formed the basis for understanding the learning and development problems of children with both visual and hearing disabilities and created conditions for their successful socialization. Today, this is especially important in light of the rapid development of inclusive education, which faces numerous tasks of a general pedagogical, defectological, and psychological nature.

At the onset of the 1970s, Alexander Meshcheryakov [11] had devised a fundamental research initiative that would go down in the history of Russian science as the Zagorsk experiment. Its aim was to explore the potential for deafblind children to attain a comprehensive higher education. At the same time, an assessment was done of the system of education and upbringing of deafblind children at the Zagorsk Children's Home, as developed by Ivan Sokolyansky, the founder of typhlosurdopedagogy, and his follower Meshcheryakov.

The experiment was prepared by the laboratory for research on deafblind children, under the direction of Meshcheryakov at the Research Institute of Defectology, and the psychology department at Moscow State University under the guidance of Aleksei Leontiev, where the deafblind students were to study.

At the time, there were only two widely known cases of people with visual and hearing impairments who had completed a program of higher education and achieved a high level of intellectual and cultural development. These were the American Helen Keller (1880—1968) and the Russian Olga I. Skorokhodova (1911—1982). Such achievements were considered exceptions and largely attributed to random combinations of favorable factors that had no practical significance.

By 1971, a group of four graduates from the Zagorsk boarding school had been selected. In 1972, they underwent preliminary training at the Institute of Defectology and were enrolled in the psychology department of Moscow State University. The teaching process, utilizing all available resources and methods for teaching the blind and deaf, was successfully completed in 1977.

Not only psychologists, defectologists, speech therapists, and teachers participated in the project, but also a prominent Soviet philosopher Evald Ilyenkov [7]. The experiment yielded positive results, generated significant social resonance, and ignited a vigorous scientific debate that continues to this day, nearly half a century later. Former participants have since engaged in the debate as professional psychologists. The experiment is intrinsically linked to the advancement of integrated and inclusive education, which fosters a new understanding of the personal experiences of "special" individuals among their peers.

We can hypothesize that the Zagorsk experiment was partly motivated by the qualities of the graduates themselves. They were all high academic achievers with pronounced cognitive interests to continue their education. Additionally, they were hard-working, determined, and willing to overcome challenges while supporting one another.

These four graduates, along with Alexander Suvorov, whose career and personal development were influenced by the Zagorsk experiment, included Yuri Lerner, Natalia Korneeva, and Sergey Sirotkin. After graduating from Moscow State University, all four were assigned to work at the Research Institute of General and Educational Psychology of the USSR Academy of Pedagogical Sciences (now known as the Psychological Institute of the Russian Academy of Education). They subsequently pursued diverse paths in their lives.

Yuri M. Lerner (1946—2003) was 25 years old when he enrolled at Moscow State University. He lost his sight at the age of four and his hearing at the age of seven. From the age of nine, he was home-schooled, following the curriculum of an elementary school for the blind. At the age of 17, he attended a boarding school. After graduating from university, he worked as a researcher at the Psychological Institute of the Russian Academy of Education and developed a keen interest in sculpture.

Natalia N. Korneeva (married name: Krylatova) was born in 1949 and enrolled at Moscow State University at the age of twenty-one. The first signs of visual and movement disorders were observed after an illness when she was two and a half years old. From the age of nine, she attended a regular school before transferring to a school for the blind; however, by the age of eleven, she began to lose her hearing. From the age of twelve, she studied in the experimental group of the Research Institute of Defectology, and from the age of thirteen, she was enrolled in a boarding school. After graduating from Moscow State University, she worked as a researcher at the Psychological Institute of the Russian Academy of Education.

Sergey A. Sirotkin (1949—2021) enrolled at Moscow State University at the age of twenty-two, where he began his studies under the guidance of Professor Sokolyansky. Born with a hearing impairment, he became completely blind at the age of five. From the age of six, he attended a kindergarten for the deaf, where he received individual tutoring, and subsequently continued his education in a school for the blind, also with individualized instruction, before entering the boarding school at the age of fourteen. He earned a Ph.D. in philosophy, with his thesis titled "Historical and Methodological Problems of Deafblindness: Myths and Reality" (1988). Following a period of work at the Research Institute of General and Educational Psychology of the USSR Academy of Pedagogical Sciences, he advanced his career as the head of the newly established Sector for Social Rehabilitation of the Deaf-Blind at the Central Board of the All-Russian Society of the Blind. He dedicated significant time to public service on the Central Board`s Council for Work with the Deaf-Blind and the Standing Commission for the Activities of the Deafblind within the European Blind Union.

Alexander Suvorov forged a distinguished and impactful academic career. His research consistently aligned with the principles of the Zagorsk experiment, contributing to the search for solutions to previously identified challenges while also establishing new objectives for working with the deafblind. The untimely deaths of his mentors, Alexander Meshcheryakov (1923—1974) and Evald Ilyenkov (1924—1979), motivated him to carry on their legacy.

In 1977, Suvorov was appointed as a junior researcher in the Laboratory of Theoretical Problems of the Psychology of Activity at the Research Institute of General and Educational Psychology of the USSR Academy of Pedagogical Sciences. Beginning in 1993, he advanced to the roles of senior researcher and then lead researcher in the group focused on the psychology of communication, development, and socio-rehabilitation of personality. He later served as an associate researcher in the Laboratory of Scientific Foundations of Psychological Counseling and Psychotherapy. Suvorov defended his candidate's thesis, titled "Self-Development of the Individual in the Extreme Situation of Deafblindness," in 1994, and his doctoral dissertation, titled "Humanity as a Factor in the Self-Development of Personality," in 1996.

He had been conducting research at the Zagorsk Boarding School since 1981. Influenced by this work, film director Algis Arlauskas made the film "Touch" in 1986.

In 1987, drawing from his own experiences, Suvorov explored the potential for a deafblind teacher to adapt to working with sighted and hearing children at the Salut Young Pioneer Camp in the Luga District of the Leningrad Region. In 1988, he began bringing deafblind children to the camp. He was the founder of the "Collaborative Pedagogy" movement, which included both disabled children and healthy teenagers and adults.

Since 1996, Suvorov taught a specialized course on collaborative pedagogy to hearing-impaired students in the defectology faculty at Moscow State Pedagogical University. From 1996 to 2006, he served as an associate professor and, beginning in 1999, as a professor in the Department of Pedagogical Anthropology at the University of the Russian Academy of Education. Additionally, he lectured at the Moscow Institute of Psychoanalysis and the Russian Orthodox University.

From 2003, Suvorov worked as a leading researcher in various departments at Moscow State Pedagogical University (MSPU), while also teaching as a part-time professor. His final position was in the Department of Special Psychology and Rehabilitation of the Faculty of Clinical and Special Psychology at MSPU.

Suvorov authored over 270 publications. His insights into the mental and spiritual development of individuals experiencing severe sensory deprivation, the distinctiveness of their education, upbringing, and social integration, the realization of their creative potential, and the nature of communication with sighted and hearing individuals are presented in five monographs, one collection

of articles, and two volumes of poetry, along with several psychological essays [18; 19; 20; 21; 22; 23; 24; 25; 26].

At the time of the Zagorsk experiment, the development of human consciousness under conditions of severe visual and auditory impairment was a widely debated issue. Gradually, the focus on consciousness transitioned from philosophical discourse to the scientific domains of psychology, pedagogy, cybernetics, and medicine.

No one denied that visual pathologies, as a primary component of an individual's sensory organization, and auditory impairments, as a crucial condition for the development of speech, significantly impact mental development. The question was to what extent this impact was irreversible or, as Ilyenkov and Meshcheryakov argued [7; 11], could be mitigated through corrective and educational work. Ilyenkov posited that the development of consciousness is facilitated by well-developed objective actions and speech. Meshcheryakov further asserted that the formation of uniquely human abiotic, cognitive needs is also essential. From their perspective, these factors were sufficient to discuss the nature of human consciousness. However, even at the outset of the experiment, Meshcheryakov's ideas faced substantial criticism for underestimating the role of biological factors in personality development and for overemphasizing the significance of social factors in the development of consciousness [5; 9]. The remarkable results of the experiment shifted the focus of the discussion from methodological concerns to clinical and psychological issues, thereby increasing the scientific community's interest in Meshcheryakov's research.

It is important to note that for Sergei Rubinstein [13] and Aleksei Leontiev [8], the consciousness of deafblind individuals was not a primary concern. Rubinstein argued that it was more pertinent to examine the adequacy of reflecting the world through touch, emphasizing that this mode of perception reproduces the properties of an object along nearly the same parameters as vision does.

For Leontiev, the most significant issue was the necessity of social and labor adaptation in the context of vision and hearing loss. This adaptation serves as a means of personality development and self-realization, as well as the capacity to utilize self-observation as a foundation for self-governance and self-disclosure to others.

In studying the psychology of children with sensory disabilities, particularly blindness, Lev Vygotsky [4] emphasized that the psyche of a blind child is not simply the psyche of a sighted person minus all visual impressions. Instead, it is qualitatively distinct, and this distinctiveness is shaped by the absence of certain functions—specifically, vision—and the compensatory mechanisms that develop to mitigate this loss.

Most importantly, the psyche can effectively utilize compensatory mechanisms to maintain its integrity. This principle is particularly relevant in the field of deafblindness.

The difference is that vision and hearing cannot compensate for one another, as seen in cases of blindness and deafness. Compensatory processes involve the retained sensory systems, as well as the processes of attention, speech, and thought.

In this discussion, representatives from various clinical disciplines, such as Vladimir Matveyev, argued that blindness and deafness have a detrimental impact on mental development that is, to some extent, irreversible. A lack of sensory stimulation diminishes overall cerebral activity, affecting the brain's integrative functions. This deprivation disrupts the functioning of consciousness, potentially leading to psychopathological phenomena [10].

The former subjects of the Zagorsk experiment participated in the discussion. In interpreting the results of the experiment, they highlighted a factor that they believed the organizers had overlooked. None of the four subjects were deafblind from birth; each had experienced a stage of normal development and possessed a stock of visual impressions, as well as the ability to speak [14].

It should be emphasized, however, that Alexander Meshcheryakov never concealed the anamnestic data of his subjects. He also highlighted that the loss of vision and hearing in these cases did not result in the disintegration of the psyche. The high level of intellectual development achieved as a result of the experiment provides grounds for optimism regarding the development of the psyche under more complex conditions involving innate visual and auditory impairments. Ultimately, this perspective does not contradict the well-established principle of chronogenesis in defectology, which posits that the earlier a particular pathology manifests, the more severe its consequences for the development of the psyche. The functioning of compensatory mechanisms does not fundamentally change with an increased reliance on external assistance in the situation of innate pathology.

It was Lev Vygotsky who introduced the concept of chronogenesis [4], emphasizing that even a brief period of normal development can provide a child significant compensatory potential. The initial retention of vision, hearing, and speech indicates that the human psyche emerge in isolation but is built upon essential prerequisites, even if these are diminished by pathology. This perspective fundamentally alters the interpretation and evaluation of the experimental findings and the conclusions drawn. Cases of total deafblindness are extremely rare, and the prognosis for the mental development of such children is less favorable compared to those who lose their sight and hearing after the age of three. A substantial modern bibliography dedicated to the findings of the Zagorsk experiment reflects the ongoing interest in this issue. In our view, further research should focus on discovering new corrective and educational methods, potentially incorporating artificial intelligence technologies. Simultaneously, our understanding of the na-

ture and characteristics of impaired development should deepen. This endeavor will undoubtedly raise new questions and reframe existing ones.

It is important to note that the term consciousness was interpreted quite broadly in this discussion and was frequently used as a synonym for the concept of psyche in general [6]. The field of typhlosurdopsychology at that time was a relatively modest branch of specialized psychology, which meant that the category of consciousness, in its narrower sense, held little practical significance. However, this situation changed as the number of children with multiple disabilities increased.

This branch of modern special psychology and corrective pedagogy has gained particular relevance today. As Alexander Suvorov noted, psychological studies of individuals with developmental disabilities should place greater emphasis on the issue of self-awareness, defined as the ability to recognize one's physical and psychological characteristics, including psychophysical disorders. This recognition facilitates adequate self-perception during interactions with the external world, including the social environment, which significantly enhances the socio-psychological adaptation of individuals with developmental disabilities. Consequently, since the early 1990s, the concept of an *internal (subjective) picture of defect* (hereinafter referred to as IPD) has been utilized in special psychology, and related studies on various categories of children with developmental disabilities have proliferated [17].

A significant portion of Alexander Suvorov's psychological research focuses on the personality development of individuals with visual and hearing impairments, particularly in the realms of cognition, communication, and creativity. His concept of creative self-realization as a crucial factor in the formation of a deafblind individual's personality builds upon the ideas of his mentors—Alexander Meshcheryakov and Evald Ilyenkov. By fostering creative potential in the context of sensory impairments, it is possible to cultivate not only a well-rounded personality but also effective modes of mutual understanding between sighted, hearing, and deafblind individuals.

Creativity serves as a distinct form of communication, facilitating self-understanding and interaction with others. It is an invaluable tool for addressing a wide range of challenges faced by children in developmental and corrective work [12; 28].

Alexander Suvorov understood creative activity in the education of the deafblind not only practically, as the most important means of forming object and spatial representations in such children, but also as a way for them to understand themselves and establish channels of communication with others. He was especially interested in the problem of the psychological barriers between the world of the healthy and the deafblind, manifested in their persistence and impenetrability. It should be noted that this is a universal problem of defectology in general: the society's attitude towards people with developmental disabilities. Positive dynamics in these relations have been observed due to the active socio-psychological integration of the disabled in the broad sense of the word. Suvorov insisted that joint creative activity is the most important factor in the social integration of deafblind individuals and can contribute to the establishment of positive relationships between them and the sighted and hearing.

Alexander Suvorov worked extensively with the concept of *humanity*, using it more frequently than the word *humaneness*, and understood it as an absolute imperative to help a person in need. Humanity is associated with the personality trait of conscientiousness. According to Suvorov, this applies not only to healthy people, who have greater capabilities, but also to the deafblind. No wonder his colleagues called him a teacher with a big heart [15].

As a practicing psychologist, Suvorov did not idealize the deafblind. He understood their diversity, their limited views about the world around them, mobility problems, lack of confidence in their capabilities and usefulness, self-centeredness, etc. At the same time, he believed that *humanity*, as the universal quality of an individual, must be cultivated in the disabled, because it gives them confidence to overcome negative social stereotypes and barriers. Specialists working with them must clearly possess this trait as well [6], because "even the sighted and hearing have their limitations" [18, p. 5].

Suvorov dedicated his entire life to the conviction that the Zagorsk experiment, in its humanitarian essence, helped bring two different worlds closer together: the world of the sighted and the world of the deafblind. It should be noted that Suvorov was among the first to voice the simple but key idea that the path to breaking the barriers between the worlds of the healthy and the disabled runs through childhood.

Children generally do not have as many prejudices about the disabled as adults. Joint creative activity, including play, is a powerful emotional stimulus and, importantly, introduces a child with developmental disabilities to the phenomenon of improvisation—unplanned, unforeseen, and thus unexpected action—as an important element of creativity and self-disclosure.

Alexander Suvorov's collaborative pedagogy highlights the fact, well-known in defectology, that in all forms of dysontogenesis, the ability for spontaneous development, i.e., self-learning through observation and imitation, is what suffers most. This is why the directed, organized learning of children with disabilities is more critical than in cases of normal development. In Suvorov's view, spontaneous development should not only complement directed learning but also emerge within the process of organized learning. In other words, a child should be taught to learn independently. According to Suvorov, "in activity, all restrictions are removed" [18, p. 15]. It is in joint creative activity that a deafblind per-

son encounters the spontaneous self-learning of sighted people and tries to imitate them.

He thus believed that the problem of the correlation between corrective education and the development of the deafblind can be viewed only in the light of their social and labor adaptation. He did much to ensure that school graduation was not the last important event in the life of the deafblind, followed by psychological degradation and confinement to a psychoneurological institution. He noted that even in the hardest times of the Second World War, the state considered it expedient to use the labor of the disabled as a form of moral mobilization, giving them a sense of being needed and involved in the great cause of victory. In besieged Leningrad, for example, the blind served in air defense units as listeners warning of the approach of enemy aircraft [2].

About the works of Alexander Suvorov

We can hardly analyze Alexander Suvorov's poetic legacy from the point of view of its artistic value. However, it is important to keep in mind that art is a special means of cognition and a rich source of information about the spiritual life of an individual, including one with special needs. Modern special psychology has only begun to make use of this source. As an example, we would like to cite a short poem by Suvorov, which poignantly expresses the drama of a deafblind person locked in their loneliness—something he wrote much about in his psychological texts [20]:

Ни капли не веря в чудо,
Not believing in a miracle at all,
Кому-то молюсь порой:
Sometimes I pray to someone:
Возьмите меня отсюда,
Take me from here,
Возьмите меня домой.
Take me home.
О Господи, — всё вздыхаю,
Oh, Lord, I keep sighing,
Расстроенный и больной.
Upset and sick.
Прошусь, а куда — не знаю:
I ask to go, but where — I don't know:
Возьмите меня домой.
Take me home.

Где мне разрешат в счастливой
Where I will be allowed in a happy
Компании — быть собой,
Company, — to be myself,
Где не было бы надрыва...
Where there will be no strain ...
Возьмите меня домой.
Take me home.
И где бы не приставали
And where they will not pester me
С моралью ко мне любой,
With any morality,
На свой бы лад не меняли...
Will not change me in their own way...
Возьмите меня домой.
Take me home.

Где добрые греют взгляды,
Where kind glances warm me,
Где каждому каждый — свой,
Where everyone is kin,
Где сразу — на помощь рады...
Where all are immediately glad to help...
Возьмите меня домой!
Take me home.

(Suvorov, 1997)

As a strong-willed and purposeful individual, Suvorov was well aware from his youth that it was senseless to expect anything from life, that, in fact, it is life that constantly expects action from a person. He steadfastly adhered to this principle, becoming essentially an Adlerian figure, who compensated for his weakness and overcame it. The life of the deafblind, according to Suvorov, posed a stark choice between creative fulfillment and the torment of feeling useless in an indifferent and heartless world [26].

Conclusion

In 1924, when Lev Vygotsky came to Moscow to work for the People's Commissariat of Education, a personnel officer asked him what area he thought he would be most useful in, and he replied, "In the area of educating deafblind children" [1; 3]. This detail is as well-known as it is difficult to interpret. Vygotsky's biographers and historians of defectology make various suppositions at odds with the fact that his defectological legacy includes no comprehensive work on the psychology and pedagogy of deafblind children. There are only references to such research in his publications. Vygotsky, it would seem, was ambitious, and when he began forming his concept of the development of an abnormal child, he immediately wanted to tackle the most difficult practical problem. He understood well that the situation of deafblind children was desperate, as difficult, in fact, as that of children with severe mental retardation. Effective means of sociocultural integration, or, in Vygotsky's words, "growing into culture," had not yet been found. The case of Helen Keller was exceptional and often described as a miracle. Ivan Sokolyansky's experimental work with deafblind children was just getting under way. Vygotsky had only ten years before his death in 1934, so not all of his proj-

ects were destined to be realized. Nevertheless, a tremendous amount of work was done.

A hundred years ago, Vygotsky could hardly have imagined the current state of education and upbringing of deafblind children, thanks to the efforts of Ivan Sokolyansky [16], Alexander Meshcheryakov [11], Augusta Yarmolenko [27], and many others. Nor could he have imagined that visually and hearing-impaired people would be involved in the education of such children: journalists, scientists, artists, and, prominently among them, Alexander Suvorov.

Over the past century, thanks to the efforts of several generations of researchers, we have acquired extensive knowledge about the mental development of individuals with concurrent visual and hearing impairments and, most importantly, about their potential capabilities. An effective system of training and education of individuals with complex sensory impairments has been created (Andrian Vladimirsky, Ivan Sokolyansky, Augusta Yarmolenko, Alexander Meshcheryakov, Olga Skorokhodova, Tatyana Basilova, Alvin Apraushev, etc.). Alexander Suvorov made a key contribution to this process, actively developing the idea that the full mental development of deafblind people is possible only through broad social integration.

Deafblind children can develop an understanding of their limitations and capabilities if they are involved in activities with normally developing children. This process, repeatedly described by Suvorov, based on his own introspection and practical work with children, is quite dramatic and painful, but it turns a deafblind child from an object of rehabilitation into a subject. From our point of view, this is the principle of humanity in Suvorov's collaborative pedagogy.

The potential for the social integration of disabled people is largely determined by society's attitude towards them. Changing this attitude is a long and complex process. Significant results cannot be achieved through the efforts of one person, but this never prevented Alexander Suvorov from attempting to influence society's attitude towards the disabled. It was the topic of many of his publications, which discussed not only the uniqueness of the psychological configuration of visually and hearing-impaired people—something, important for sighted and hearing people—but also what the deafblind should know about sighted and hearing people. According to Suvorov, it is precisely in the process of reciprocal action that it is possible to overcome the feeling of loneliness, which is the first social consequence of the loss of vision and hearing and the most terrible in its catastrophic effect on the development of the psyche [11].

It is worth mentioning that the efforts of Suvorov and other Russian scientists have given typhlosurdopsychology, which was a very modest branch of special psychology, a new impetus for development. We hope that future researchers will explore the rich legacy of Alexander Suvorov.

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