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OF PSYCHOLOGY AND EDUCATION

cultural-historical
PSYCHOLOGY

Artificial Intelligence through the lens
of cultural-historical psychology

культурно-историческая
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Editor's column

This year marks 70 years since 1956, when at the famous seminar at Dartmouth College (USA), organized and led by the outstanding cyberneticists and information theory specialists John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon, the creation of a new field of scientific research and technological development – Artificial Intelligence (AI) – was announced. The term AI was coined by McCarthy.

This was not an unfounded claim: searches in this direction had already been actively unfolding even before the two-year seminar at Dartmouth was held. By that time, Alan Turing had already introduced the term Machine Intelligence. There were also impressive groundwork achievements. In 1955, Allen Newell, Clifford Shaw, and Herbert Simon (the future Nobel laureate in economics, 1990) developed the Logic Theorist (LT) program, built on classical propositional calculus. LT easily and elegantly proved theorems of symbolic logic by A. Whitehead and B. Russell (from their three-volume *Principia Mathematica*, published back in 1910–1913) at the level of a good mathematics student, and in some cases surpassed the authors of the theorems in the “art of proof”. Bertrand Russell took this positively, with his characteristic sense of humor. In 1957, the same authors presented the General Problem Solver (GPS) program – the first genuinely “heuristic program” for computers, i.e., a program operating on incomplete algorithms to solve “non-typical problems” and capable of “self-learning” and extending algorithms. The authors announced the possibilities of computer simulation of intellectual and creative processes. Unlike LT, GPS did not merely prove already proven mathematical-logical theorems, but also solved puzzles, chess problems, and so on.

But even then it became clear that, while coping with the solution of conditional problems (like the “Tower of Hanoi” puzzle), the program often falters before real ones, without going beyond the framework of the propositional calculus principles built into it. And the point is not that formally conditional problems possess less “cognitive complexity” compared to real ones – often the opposite is true (let us repeat: from a formal point of view). It is simply that real problems arise in the changing, unpredictable, “non-precomputable” conditions of people's lives, which sometimes require a conscious change in the foundations of their modes of action. These conditions themselves have not yet taken shape, have not been created by people for themselves – and not for a machine – conditions that, as they are created, change people themselves and transform their potential. This happens constantly in history, and in individual destinies. Therefore, even the first wave of AI euphoria – in some – and AI phobia – in others (we are now experiencing a second, more powerful one) – was “cooled” by arguments, or more precisely, by proofs of the fundamental impossibility of AI copying even certain specific functions of thinking as reason, which did not deny but, on the contrary, allowed for the transfer to a machine of part of its utilitarian-rational functionality, which, strictly speaking, does not presuppose the labor of living thought.

It would be naive to think that everything here can be “put on shelves” in advance. The discussion about the capabilities of AI and its limitations is extremely important for the entire family of human sciences, and above all for psychology. It makes it possible to sharpen the question of the nature of human thinking (E.V. Ilyenkov), of “Natural Intelligence” (NI), of its involvement in human life, in the processes of solving life's tasks, where the main “object sought” is the person himself and the prospects for his development in various forms of activity of people and their communities. This includes activity mediated and enhanced by the potential of AI thanks to the searches and discoveries of NI, which, of course, cannot but be transformed in this creative process. Moreover, what more than half a century ago was created in university laboratories and discussed at the Dartmouth seminar has become a phenomenon of the life of humanity in the 21st century. Everyone today knows about AI and neural networks (the first of which was built in 1943 by W. McCulloch and W. Pitts on a vacuum-tube, analog basis). But what do we know about NI and its modern realizations in the unprecedented diversity of human activities? What functions of AI in various areas of social practice can serve the solution of NI's “own tasks”, given its historical distinctiveness? Although the question is usually posed differently: what is required of man in a world ruled by the “digital” and where everything is “generated” by AI?

Hence the interest of cultural-historical psychology in the theme of AI, in which it not only finds points of its own growth, but the theme itself is also revealed in a special optic. The features of this optic are revealed by the authors of the issue of the journal offered to the reader's attention.

From the standpoint of CHP (cultural-historical psychology), any natural human intellect, including even the so-called “natural mind”, is artificial. Let us use an example that our common teacher V.V. Davydov gave in his lectures. A child independently builds a construction out of blocks, unaware that he is grasping the simplest mechanical regularities, with account taken of which these very blocks were constructed before him, and in which the logic of the initial grasping of these regularities is already given. In grasping this mechanics, he masters a definite mode of thinking. One could say that the blocks are a prototype of AI “by the design” of NI. But they will not assemble themselves, although they do “suggest” a mode of assembly — though, of course, only the person who thought them up and made them can suggest. And even he cannot fully foresee how the child will assemble the blocks so that what results is not a heap that will fall apart, but a reliable construction. Their designs must coincide in something, but the details of the coincidence are not fully known. After all, reason is not a device but a deviser, not a construction but a constructor, who creates his own unique construction as well. It — the aggregate “construction of reason” — does not lend itself to imitation.

This means that the problem of AI is the problem of AI mediating the relations of at least two NIs within the human community. The way AI is included in people's lives is determined precisely by this. It is no accident that in the history of science and practice there occurred a shift of priorities from the “cybernetics of signals” to the “cybernetics of symbols”, and the processes of information and its understanding came to be conceived in the logic of the processes of mediation, communication, and mutual understanding among people, in which each person's self-relation takes shape.

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PSYCHOLOGICAL DEVELOPMENT
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Artificial intelligence as a cultural tool: Heuristic potentials and limitations of the metaphor

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Abstract

Context and relevance. The large-scale adoption of artificial intelligence systems in education, professional activity, and everyday life challenges established psychological conceptions of development, mediation, and subjectivity. Within cultural-historical psychology, AI is most often analyzed through the metaphor of a cultural tool, which appears to preserve theoretical continuity but may obscure the fundamentally novel nature of digital sociotechnical systems. **Objective.** Through theoretical analysis, to identify the advantages and disadvantages of considering artificial intelligence as a cultural tool within the logic of cultural-historical psychology. **Hypothesis.** The cultural tool metaphor has significant heuristic potential for analyzing the mediation of activity involving AI; however, its explanatory capabilities are limited and, when applied uncritically, lead to conceptual reductions. **Theoretical framework.** The study is based on a reconstruction of key tenets of the cultural-historical and activity traditions, as well as on interdisciplinary work in the philosophy of technology, the anthropology of digital technologies, and critical AI studies. **Results.** It is shown that AI radically breaks the link between the mediation of activity and the mediation of development, redistributes agency and responsibility, and also generates effects of reverse mediation, influencing the subject’s way of thinking and self-evaluation. It is revealed that the language of the cultural tool carries a latent normative effect, contributing to the naturalization of technological change. **Conclusions.** Artificial intelligence represents the first mass cultural means introduced without a cultural-psychological project of subject development. This positions AI not merely as an object of analysis but as a challenge to cultural-historical psychology itself, necessitating a reconsideration of key concepts.

Keywords: cultural-historical psychology; artificial intelligence; cultural tool; subject development; mediation; subjectivity; digital culture

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Искусственный интеллект как культурное орудие: эвристические возможности и ограничения метафоры

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Резюме

Контекст и актуальность. Массовое внедрение систем искусственного интеллекта (ИИ) в образование, профессиональную деятельность и повседневные практики ставит под вопрос устоявшиеся психологические представления о развитии, опосредствовании и субъектности. В культурно-исторической психологии анализ ИИ чаще всего осуществляется через метафору культурного орудия, которая внешне сохраняет теоретическую преемственность, но одновременно может скрывать принципиальную новизну цифровых социотехнических систем. **Цель.** В результате теоретического анализа выявить достоинства и недостатки рассмотрения искусственного интеллекта в качестве культурного орудия в логике культурно-исторической психологии. **Гипотеза.** Метафора культурного орудия обладает значительным эвристическим потенциалом для анализа опосредствования деятельности с участием ИИ, однако ее объяснительные возможности ограничены и при некритическом применении приводят к концептуальным редукциям. **Теоретическая основа.** Исследование опирается на реконструкцию ключевых положений культурно-исторической и деятельностной традиций, а также на междисциплинарные работы в области философии техники, антропологии цифровых технологий и критических исследований искусственного интеллекта. **Результаты.** Показано, что ИИ радикально разрывает связь между опосредствованием деятельности и опосредствованием развития, перераспределяет субъектность и ответственность, а также формирует эффекты обратного опосредствования, влияя на образ мышления и самооценку субъекта. Выявлено, что язык культурного орудия обладает скрытым нормативным эффектом, способствуя натурализации технологических изменений. **Выводы.** Искусственный интеллект является первым массовым культурным средством, внедряемым без культурно-психологического проекта развития субъекта. Это превращает ИИ не только в объект анализа, но и в вызов для самой культурно-исторической психологии, требующей пересмотра ключевых понятий.

Ключевые слова: культурно-историческая психология, искусственный интеллект, культурное орудие, развитие субъекта, опосредствование, субъектность, цифровая культура

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Introduction

The rapid spread of AI technologies across various spheres of human activity has become one of the most significant factors transforming contemporary sociocultural practices. These changes affect not only the technical ways in which tasks are performed but also forms of thinking, communication, learning, and self-regulation, making AI an increasingly important subject of interest for psychological science.

Within the cultural-historical tradition, the interpretation of AI as a cultural tool has gained popularity (Sizikova, 2023; Noskova, 2024; Soldatova, Voiskounsky, 2021). This metaphor draws on L.S. Vygotsky's fundamental proposition concerning the key role of cultural

means in the development of higher mental functions and provides conceptual continuity between classical ideas and the analysis of contemporary technologies. At first glance, this move appears quite natural; however, it is precisely this apparent naturalness that, in our view, requires problematization. Contemporary AI systems differ fundamentally from the cultural tools whose analysis provided the basis for the development of cultural-historical psychology. They do not merely extend certain capacities of the subject but also redistribute the functions of action, decision-making, and control among the human being, the technological system, and the institutional environment, thereby giving rise to the problem of the distribution of responsibility. As a result, the traditional model of tool mediation, which presupposes

an active subject mastering and appropriating a cultural tool, proves to be a substantial simplification when applied to AI. In other words, AI does not fully meet the criteria of a cultural tool in the classical cultural-historical sense; rather, it functions as a cultural means, an element of the cultural environment that participates in organizing activity and thinking while not presupposing full appropriation and voluntary control on the part of the subject. In this regard, AI appears not so much as a new object of analysis as a kind of “stress test” for cultural-historical psychology itself. Attempts to describe it reveal the limits of applicability of key concepts (mediation, internalization, and the cultural tool) and raise the question of the extent to which the theory is capable of describing sociotechnical systems operating at levels that extend beyond individual activity.

The current state of the problem is characterized, on the one hand, by the active use of the classical terminology of cultural-historical psychology in research on the digital environment and, on the other, by the absence of a systematic analysis of the theoretical consequences of such a transfer. This creates a risk both of excessively broadening the concept of the cultural tool and of reducing it conceptually.

The relevance of the study is determined by the need for a critical examination of the metaphor of AI as a cultural tool from the perspective of cultural-historical psychology. The scientific novelty of the study lies in a comprehensive analysis not only of the heuristic potential of this metaphor but also of its limitations.

The aim of the study is to identify the advantages and risks of considering artificial intelligence as a cultural tool from a cultural-historical perspective.

Research objectives

1. To analyze the classical understanding of cultural tools.
2. To assess the heuristic potential of applying this metaphor to artificial intelligence.
3. To identify the conceptual limitations and risks of this approach.

Research question: Within what limits can the metaphor of the cultural tool be productively used to analyze artificial intelligence in cultural-historical psychology?

The concept of the cultural tool

The use of the metaphor of the cultural (essentially, psychological) tool in discussions of AI by psychologists rarely becomes an object of explicit reflection in itself. As a rule, it is used implicitly as a self-evident methodological lens that makes it possible to incorporate AI into an already familiar theoretical landscape. Yet such a conceptual transfer is not self-evident. It reflects a specific way in which cultural-historical psychology responds to the emergence of new technologies: an effort to preserve conceptual continuity and interpret radically new phenomena through categories that have already been developed and assimilated.

In L.S. Vygotsky's classical framework, the cultural tool functions as a means that mediates the subject's activity and facilitates the development of higher mental functions (Vygotsky, 1982, 2005). In the activity tradition, this conception was supplemented by an analysis of activity systems in which tools, goals, and social relations form an integrated structure (Leontiev, 1983). In both cases, the tool is understood as an element that can be mastered, appropriated, and incorporated into consciously regulated activity.

Applying this model to AI makes it possible to preserve theoretical coherence while simultaneously masking the fundamental novelty of the phenomenon itself. Unlike classical cultural tools, AI constitutes a complex sociotechnical system whose functioning is determined not only by the individual actions of the user but also by algorithmic architectures, institutional regulators, and economic interests (Floridi, 2019). In this context, the tool metaphor increasingly performs a compensatory function. It can be said to compensate for a conceptual deficit that arises when encountering an object that is difficult to describe in terms of individual mediation. The critical difference between AI and previous generations of tools is that, whereas the logic of an automobile or television can in principle be understood and appropriated by the subject, even if not at the engineering level but at the level of functional causality, the core of contemporary AI systems (the deep-learning algorithms) constitutes a “black box”. Their operation is based on statistical correlations rather than on symbolic rules accessible to conscious reflection. Moreover, AI often functions as an adaptive infrastructure that unobtrusively shapes the activity environment itself, rather than as a passive instrument applied at will.

Thus, the use of the concept of the cultural tool in the analysis of AI can be regarded as an indicator of the insufficient development, within cultural-historical psychology, of concepts for analyzing the distribution of subjectivity in multilevel sociotechnical processes. While preserving the appearance of theoretical continuity, the tool metaphor simultaneously conceals the mismatch between the classical model of mediation and the actual practices of human interaction with contemporary intelligent systems. It is precisely this mismatch that requires further conceptual analysis.

In order to assess the applicability of the metaphor “AI as a cultural tool”, it should be noted that in the cultural-historical and activity traditions, a cultural tool refers not to any means of activity but only to something incorporated into a specific type of mediation that has developmental potential. In the works of L.S. Vygotsky, the cultural tool functions as an artificially created means through which a person restructures the organization of their own mental activity (Vygotsky, 1982). What is crucial here is not the mere use of an external means but the process of mastering it and its subsequent inter-

nalization. The tool initially exists in an external, social space and then gradually becomes an internal means of regulating behavior. This process presupposes an active position of the subject involved in joint activity and relies on the development of voluntariness, reflection, and conscious control.

A.N. Leontiev continued this line of reasoning by linking the developmental effect of the tool to its incorporation into an activity system with socially determined motives, goals, and modes of action (Leontiev, 1983). In this context, the tool does not “work” by itself; it becomes psychologically meaningful insofar as the subject masters socially developed ways of acting with it. Development is understood here as a transformation of the structure of activity and of the corresponding mental functions. P.Ya. Galperin and B.D. Elkonin also contributed to the development of the concept of the cultural tool (Pavlenko, 2020).

Thus, the classical tradition makes it possible to identify several fundamental conditions under which a cultural tool can be regarded as a factor of development: active mastery, the possibility of internalization, the formation of voluntary control, incorporation into socially organized activity, and a connection with the restructuring of higher mental functions. These conditions establish stringent criteria that become problematic when the metaphor is transferred to contemporary digital technologies.

Artificial intelligence as a cultural tool: Heuristic potentials of the metaphor

Considering AI as a cultural tool has a number of significant advantages that help explain the prevalence of this metaphor in contemporary psychological discussions. The key ones are as follows.

1. The metaphor provides conceptual continuity between the classical ideas of cultural-historical psychology and the analysis of new technological forms. Understanding AI as a means of mediation makes it possible to use traditional categories of cultural-historical psychology (mediation, internalization, voluntariness, external and internal regulation, and so forth) to analyze how algorithmic systems become incorporated into human activity (Vygotsky, 2005; Wertsch, 1998).

2. The cultural tool metaphor directs research toward concrete practices of its use. Within the cultural-historical tradition, AI does not possess independent psychological subjectivity but functions as a means incorporated into the subject's activity and mediating the subject's relations with the task and the social environment. This makes it possible to analyze the influence of AI as a result of specific forms of activity in which it is incorporated.

3. The metaphor has considerable potential for studying transformations of higher mental functions. From

this perspective, AI can be considered a means of external regulation of attention, memory, thinking, and decision-making, making it possible to analyze the redistribution of functions between the human being and the cultural tool (Vygotsky, 1983).

4. Describing AI as a cultural tool opens up space for normative and ethical analysis. If AI is considered a means of cultural mediation, its design and implementation become matters of moral responsibility. Its influence on subject development depends on which forms of activity and self-regulation are supported by the technology. This approach makes it possible to avoid treating AI as a neutral or exclusively technical factor (Soldatova, Ilyukhina, 2025).

5. The metaphor facilitates dialogue between cultural-historical psychology and contemporary interdisciplinary research on digital culture and technologies. Such research in sociology, anthropology, media studies, and the philosophy of technology actively examines how technologies restructure forms of thinking, communication, and social life. However, these discussions are often conducted in terms that have only a limited connection with specifically psychological problems. By retaining its own conceptual apparatus, cultural-historical psychology can participate in the analysis of current processes without losing its distinctive specificity, incorporating the discussion of digital technologies into its own theoretical framework. This creates an opportunity to participate in interdisciplinary dialogue without dissolving into it or abandoning the specific psychological perspective on subject development.

Mediation of activity and mediation of development

Despite the considerable heuristic potential of the metaphor “AI as a cultural tool”, its use within cultural-historical psychology entails a number of substantial theoretical and methodological limitations. One of the key and least examined assumptions in contemporary psychological discussions of AI is the identification of the mediation of activity with the mediation of development. Within the logic of cultural-historical psychology, such identification is fundamentally incorrect; nevertheless, it often underlies optimistic interpretations of AI as a “developmental tool”.

In the classical tradition, the mediation of activity is not in itself equivalent to development. Vygotsky emphasized that development is associated not with an increase in the efficiency of actions but with a restructuring of their psychological organization, with the emergence of new forms of voluntariness, reflection, and awareness of one's own actions (Vygotsky, 2017; Maidansky, Rubtsov, 2025). A tool may facilitate task performance, reduce workload, and accelerate the

achievement of a result without creating conditions for the formation of new higher mental functions. Moreover, under certain conditions, it may displace those forms of activity that were regarded as developmental within the classical model.

It is precisely here that AI reveals its “problematic” character as a form of cultural tool. Contemporary AI systems are designed primarily as means of optimization, since they reduce the number of operations, automate decision-making, and minimize uncertainty and errors (Brynjolfsson, McAfee, 2014). From the perspective of activity efficiency, this is undoubtedly an advantage; from the perspective of subject development, however, the consequences of such optimization are far from obvious.

If we proceed from the activity approach, development involves transforming the structure of activity and generating new psychological forms through the productive overcoming of difficulty (Leontiev, 1983). In this context, AI often functions as a means of “removing” a problem situation because it preserves the result (efficiency) while potentially eliminating or minimizing the very process of exploratory and orienting activity that serves as a source of development. AI undoubtedly transforms mental activity, but it does so differently from classical tools, often through the delegation and “closure” of cognitive functions within an opaque circuit, radically changing the conditions for their internalization.

Thus, a fundamental mismatch arises: AI may function as a powerful means of mediating activity without simultaneously being a means of mediating development. Moreover, in a range of educational, professional, and creative practices, it may contribute to the formation of dependent forms of activity in which the subject increasingly relies on an external system and increasingly masters fewer ways of acting (Carr, 2010; Soldatova, Ilyukhina, 2025; Chigarkova, Soldatova, 2026). This contradiction undermines the very idea of an automatic “developmental function” of cultural means and calls for its radical reconsideration in relation to digital technologies.

Reverse mediation: AI as a regulator of the subject's way of thinking

An even more radical challenge to cultural-historical theory is associated with the fact that AI functions not only as a means of mediating activity but also as a factor shaping the subject's conceptions of their own thinking. Traditional concepts of cultural-historical psychology prove insufficient for describing this new reality. Accordingly, in the present study, reverse mediation is proposed as a term for a process in which a means incorporated by the subject into the performance of an activity, by virtue of the characteristics of its design and

functioning and through changes in the organization of that activity, contributes to changes in the ways in which the subject organizes, evaluates, and understands their own activity and their own capabilities. The nature and direction of this change depend on the design and modes of functioning of the means. In the case of relatively simple means, the relationship between their use and changes in modes of activity is usually directly accessible to the subject's understanding and control. In the case of complex sociotechnical means such as AI, the changes that arise are generally not initiated by the subject, are not consciously recognized by them, and cannot be fully anticipated or controlled by them. Reverse mediation differs from feedback in that the process does not merely return information about the result of an action; rather, the means itself, incorporated into the activity as its mediating component, participates, often implicitly, in changing the very way in which the subject organizes, evaluates, and understands that activity. This may be described as a transition from mediation as instrumental extension to mediation as the constitution of an environment that prescribes particular ways of being, acting, and thinking.

This raises a problem for the classical idea of internalization: what exactly is being internalized — the tool as a means or the tool as a system of external rules and evaluations beyond the subject's control? If, in the classical model of cultural-historical psychology, the tool was understood as a means through which the subject extends and restructures their mental functions while retaining an active position of mastery (Vygotsky, 1982), the situation becomes more complex in the case of AI because interaction with intelligent systems constantly places human thinking in relation to machine thinking, often within a logic of comparison, evaluation, and competition. Algorithmic recommendations, automatic generation of texts, solutions, and interpretations facilitate the formation of particular conceptions of “how to think correctly”, “what constitutes a good result”, and “where the boundary of one's own capabilities lies” (Pasquale, 2015; Crawford, 2021).

Of course, any tool can structure the activity of the person using it (the objective determination of the image of the world) (Asmolov, 2023; Kudryavtsev, 2016), but in the case of complex technological systems used in education, professional activity, the social sphere, medicine, and so forth, the issue concerns a more extensive form of influence (Nikolaev, 2025). AI begins to function as a normative regulator of thinking rather than merely as a technical means. It sets the pace, style, and format of cognitive activity; creates expectations of immediate answers; and reduces tolerance for uncertainty and prolonged processes of searching for meaning. It may be possible to speak here of a specific internalization of algorithmic standards, whereby the subject begins, to some extent, to relate their own thinking to the logic of

machine-based data processing (Floridi, 2019; Rieder, 2020). A means that, according to the classical model, should be subordinated to the subject begins to set the subject's boundaries. It shapes expectations, standards, and self-evaluation. It is no longer the person who determines how and when to use the tool; rather, the system itself, through interfaces, algorithms, ratings, and automatic suggestions, gently or even quite forcefully regulates the style of thinking, the pace of work, and even one's sense of intellectual adequacy.

From a cultural-historical perspective, this means shifting the focus of analysis from individual actions to the transformation of subjectivity. AI affects not only what a person does but also who they understand themselves to be. Interaction with AI may contribute to the formation of orientations toward external regulation, reduced trust in one's own experience, and reduced reliance on forms of knowledge that cannot be formalized. Thus, reverse mediation calls into question the classical idea of internalization as an unambiguously developmental process when applied to AI and requires its critical reconsideration under conditions of digital culture.

A tool without a subject

One of the most radical consequences of analyzing AI within the logic of cultural-historical psychology is the identification of a crisis of appropriation that undermines the very possibility of treating AI as a cultural tool in the strict sense. In the classical model, a psychological tool is something that the subject can master, internalize ("grow into"), and make part of their own system of activity regulation (Vygotsky, 2017; Maidansky, Rubtsov, 2025). In other words, a tool becomes cultural not simply because it exists but because the subject can master, appropriate, and use it voluntarily. Even complex sign systems (writing, counting, and scientific concepts) presuppose the possibility of understanding their principles and consciously controlling their use. Appropriation presupposes an understanding of the principles underlying the operation of the tool, the possibility of using it purposefully, and, crucially, the possibility of refusing to use it (Vygotsky, 2005; Leontiev, 1983). It is through appropriation that a tool becomes a factor of development.

AI clearly disrupts this logic. Contemporary intelligent systems are fundamentally opaque to the user. Their functioning is based on statistical models, large-scale computation, and infrastructures that extend beyond the boundaries of individual experience and understanding (Burrell, 2016; Pasquale, 2015). An individual user does not know precisely how decisions are made, on what data the system was trained, or what objectives and constraints are embedded in its architecture. Researchers have written about the "black box of AI" (Bathae, 2018; Marcus, Teuwen, 2024). The subject interacts not

with a tool that they master but with the outputs of a system whose logic is inaccessible to them, even when the system provides an explanation of one kind or another. Consequently, this tool cannot be mastered in the classical sense, like a hammer, a language, or a mathematical method. The user interacts with the surface of the system but does not control its logic. The tool thus seems to exist without a subject capable of assuming responsibility for it and appropriating it in the cultural-historical sense.

This circumstance has fundamental implications for the question of responsibility. In the classical model, responsibility for the use of a tool rests with the subject of activity because it is the subject who makes choices and exercises control and evaluates consequences (Rubinstein, 1957). However, the implementation of AI systems substantially complicates the localization of subjectivity. By distributed agency, we mean a situation in which some processes previously carried out directly by the subject in organizing and regulating their own activity are delegated to technical means and institutional structures. Such processes include, for example, setting and transforming a task, generating and evaluating possible alternatives, selecting a mode of action, producing and evaluating decisions, monitoring their implementation, and assessing their consequences. At the same time, the distribution of functions does not mean that all components of the system possess agency or responsibility in the same sense. A technical system may participate in the performance of an activity, alter its course, and influence its outcome without becoming a subject or bearer of responsibility in either the psychological or the social-normative sense, while simultaneously contributing to the development in the subject of phenomena that D.A. Leontiev (2024) relates to disturbances of activity self-regulation, as well as reducing the variability and diversity of outcomes of forms of human experience and activity in society (Nikolaev, Asmolov, 2025; Hutson, 2026). Therefore, the distribution of agency requires a separate analysis of which participants, and to what extent, retain the possibility of choosing, controlling, verifying, and rejecting a decision and, accordingly, within what limits responsibility can be assigned to them.

Overall, in the case of AI, responsibility becomes distributed among different people and institutional actors involved in the development, implementation, regulation, and use of the system. Such distribution blurs the very idea of psychological responsibility for a particular decision or choice and makes it impossible simply to transfer classical conceptions of the subject of activity to contemporary sociotechnical systems (Latour, 2005). We are dealing with a tool that actively affects thinking but does not belong to the subject either cognitively or socially. This calls into question the very possibility of speaking of AI as a cultural tool without substantially revising the concepts of the subject and responsibility. In

other words, in the case of AI, mediation becomes multi-level, distributed, and partially anonymous. Algorithmic systems function not only as means of performing tasks but also as infrastructural elements that shape the very conditions of possibility for acting and thinking.

For cultural-historical psychology, this means recognizing that AI operates within a logic of collective and institutional mediation in which the subject is not the sole center of control. If this is the case, then the concept of the cultural tool requires either radical expansion or an acknowledgment of its limits of applicability. Otherwise, the theory risks describing a situation that no longer exists, presupposing an individual subject where action, choice, decision-making, and control are distributed within a sociotechnical system among people, technical means, and the institutional environment.

Beyond its theoretical limitations, the metaphor of “artificial intelligence as a cultural tool” carries a substantial normative context. The language of cultural development, mediation, and evolution has a powerful legitimizing effect because it tends to represent technological change as a natural and inevitable stage of historical progress (Foucault, 1980). In this context, AI begins to be perceived less as the result of specific economic, political, and engineering decisions and more as the “next step” in cultural development (Nestik, 2019). By describing AI as a cultural tool, we seem to attribute to it in advance the status of a “natural stage” of cultural evolution, with which one should learn to live and which, in general, works “for the benefit” of development. Such a description can hardly be regarded as exhaustive (Asmolov, 2024).

This is particularly important for psychology because the metaphor of a developmental tool shifts the focus from discussing why, how, and for whom a technology is introduced to the question of how to adapt more quickly to what is presumed to be inevitable (see, e.g., Soldatova, Chigarkova, Ilyukhina, 2024; Soldatova, Ilyukhina, 2025). As a result, less attention is paid to inequalities in access to technologies, cultural differences, and the possible negative effects of AI on the development of different social groups (Benjamin, 2019; Noble, 2018). Potentially deforming effects (narrowing of independent thinking, reduced reflective control, and redistribution of responsibility) are pushed to the margins of analysis or interpreted as temporary difficulties of adaptation (Asmolov, 2020). As a result, the language of development and mediation may unintentionally legitimize and naturalize technological change, presenting it as natural and inevitable even when its consequences for human beings and society remain uncertain or, moreover, questionable.

Conclusion

The analysis has shown that AI occupies a fundamentally distinctive position among contemporary cultural

means and cannot be unconditionally incorporated into the classical model of tool mediation developed within cultural-historical psychology. Unlike traditional cultural tools, AI is incorporated into the subject's activity primarily as an infrastructural and institutionally mediated technology designed outside the logic of psychological development. This circumstance radically changes the conditions under which mediation can be regarded as a factor in the development of higher mental functions.

AI does not simply continue the trajectory of previous technological tools but represents a qualitative leap. Its uniqueness lies in the combination of opacity (“black box”), adaptability to the user, infrastructural scalability, and a claim to perform cognitive functions. It is precisely this combination that transforms AI from a simple instrument into an active participant in the redistribution of psychological functions and agency. Accordingly, cultural-historical psychology faces not only the task of expanding the applicability of its concepts but also the need for their critical revision. In particular, the distinction between the mediation of activity and the mediation of development acquires fundamental importance: increased efficiency and the automation of cognitive operations do not in themselves guarantee the formation of voluntariness, reflection, and a subject position. Moreover, under conditions of delegating cognitive functions to AI, the space for development may narrow even as functional productivity increases.

In this context, AI functions not merely as an object of analysis but also as a challenge to psychological theory. It makes visible and explicit a situation in which a cultural means is used on a mass scale without a cultural-psychological project directed toward the formation of the subject. In this way, AI reveals the limits of the classical model of the cultural tool while simultaneously pointing toward directions for its further theoretical development.

Based on the findings of the study, the following conclusions can be formulated.

1. It has been shown that the metaphor of AI as a cultural tool has considerable heuristic potential for analyzing the mediation of activity; however, it cannot be automatically transferred to the analysis of processes of psychological subject development.

2. It has been established that under conditions of using AI systems, a gap emerges between the mediation of activity and the mediation of development, calling into question the assumption that any cultural means is inherently developmental.

3. It has been demonstrated that AI functions as a means that the subject cannot fully master, appropriate, or control, which problematizes the classical understanding of the cultural tool as a psychologically mastered means.

4. It has been shown that interaction with AI generates effects of reverse mediation, influencing the sub-

ject's way of thinking, self-evaluation, and conceptions of their own cognitive capabilities.

5. It has been substantiated that the use of the cultural tool metaphor in relation to AI has a latent normative effect, contributing to the naturalization of technological change and reducing critical attention to its consequences.

The novelty of the study lies in treating AI as a limiting case of a cultural means that reveals the limitations of the classical categories of cultural-historical psychology and requires their refinement. The practical

significance of the study is associated with the possibility of using its findings in the psychological assessment of educational, professional, and digital practices based on the use of AI systems.

Future research should focus on developing expanded models of mediation that take into account the socio-technical and institutional nature of contemporary digital means, as well as on analyzing the conditions under which the use of artificial intelligence can be incorporated into a meaningful cultural-psychological project of subject development.

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Subject agency in the context of digital childhood: Possibilities for its emergence and suppression

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Abstract

Context and relevance. The main challenge posed by the digitalization of education, which involves the use of neural networks and artificial intelligence, is the need to restore the student's own subject agency when solving educational tasks. Subject agency in activity is the most important condition for organizing the processes of developing the intellectual abilities of students and teachers. **Objective.** Determine the conditions under which AI is used by students as a means of solving tasks that ensure the initiation of subject agency in educational and project-based activities. **Hypothesis.** The initiation of students' subject agency will be brought about by a special reconstruction of the digital systems used by master's students – search engines, AI systems – in order to transform them into a means of organizing their own activity for solving specially posed tasks. Such tasks, implemented in the process of students' learning, will make it impossible for master's students to directly handle digital system. **Results** The authors associate the solution of the research tasks formulated by them with a change in the forms of teaching in their specific work with master's students based on the creation of special educational tasks. The most important type of task is the task that initiates subject agency in educational work. **Conclusions.** The most important condition for restoring students' subject agency when using AI is the use of tasks in which students themselves identify the limitations of the answers offered by AI systems. In this case, the student is faced with the need to justify their new solution, which does not coincide with the answers offered by the AI.

Keywords: digital childhood, artificial intelligence (AI), cultural-historical psychology, means, intellectual abilities, mediation, subject agency

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Субъектность в условиях цифрового детства: возможности ее инициации и подавления

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Резюме

Контекст и актуальность. Основным вызов, который создает цифровизация образования, связанная с использованием нейросетей и искусственного интеллекта, состоит в необходимости восстановления собственной субъектности учащегося при решении образовательных задач. Субъектность деятельности является важнейшим условием организации процессов развития интеллектуальных способностей учащихся и педагогов. **Цель.** Определить условия, при которых ИИ используется учащимися как средство решения задач, обеспечивающих инициацию субъектности в образовательно-проектной деятельности. **Гипотеза.** К инициации субъектности учащихся будет приводить специальная реконструкция используемых магистрантами цифровых систем — поисковиков, систем ИИ — для превращения их в средство организации своей деятельности для решения специально поставленных задач. Подобные задачи, реализуемые в процессе обучения учащихся, сделают невозможным для студентов непосредственное обращение с цифровыми системами, автоматизированно предоставляющими ответ на поставленный вопрос в готовой форме. **Результаты.** Авторы связывают решение сформулированных ими исследовательских задач с изменением форм преподавания в их конкретной работе с магистрантами на основе создания специальных учебных заданий. Важнейшим типом заданий являются задачи, которые иницируют субъектность в учебной работе. **Выводы.** Важнейшим условием восстановления субъектности у студентов при использовании ИИ становятся задания, при которых сами студенты выявляют ограниченность ответов, предлагаемых системами ИИ. Студент в этом случае ставится перед необходимостью обосновать свое новое решение, не совпадающее с ответами, предложенными ИИ.

Ключевые слова: цифровое детство, искусственный интеллект (ИИ), культурно-историческая психология, средство, интеллектуальные способности, опосредствование, субъектность

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Introduction

The looming, under-researched prospect of the element (rather than deliberately designed form) of the so-called “digital childhood” in education represents a serious challenge for the Russian psychological and pedagogical community, and more broadly, the educational community. This prospect is largely not Russian and is mostly based on copying the “advanced” solutions of the West, with which we are in a state of, if not open confrontation, then competing rivalry (Desai, 2025).

It is highly indicative that among the voices of digital evangelists (staunch defenders of educational digitalization who seek to allow children to become digitalized) (Chan, Colloton, 2024; Hussaini, 2024; Keene, 2025; Voysey, La Greca, 2025) and digital luddites (advocates for banning smartphones, social networks, and artificial intelligence, at least for the time being) (Shvabauer, 2025; Tachmamedova, 2025), the voices of digital realists have become increasingly audible (Smirnov, 2021a; Gromyko, Rubtsov, 2021; Skobelev, Gromyko, 2022; Gromyko, 2023). Digital realists strive to understand in what way the use of the Internet, social networks, digital

platforms, search engines, virtual reality, and AI in education is an unconditionally new public good and a tool of mandatory intellectual work for everyone.

However, the second question from digital realists is more important: what is happening to intellectual processes and complex abilities, the basis of which is formed by a mode of activity rather than just a verbal name — understanding, conceptual thinking, categorical thinking, reflective thinking, mutual understanding, communication, reflection, self-determination, schematization, but also reading, writing, solving arithmetic problems, skills of retelling texts, expressing thoughts in words, problematizing false statements, and the ability to decline an offer to perform an imposed behavioral action?

In our view, this is the subject of the most serious comprehensive psychological and pedagogical research, the reliability of which is determined not so much by the statistical validity of ready-made methodologies or large samples ensuring the reliability of conclusions, but by a special conceptual strategy and a new formulation of questions that remain outside the field of attention of the psychological and pedagogical community. It is fundamentally important that questions concerning the analysis of the impact of digitalization on intellectual processes and the diagnosis of students' intellectual development be formulated not in the language of academic school subjects, not in the language of information received in lessons, but in the language of the development of intellectual abilities and mastered general methods for solving various tasks.

In today's situation, the myth that the rising generation, whose acquaintance with digital games, smartphones, and computers begins earlier than with books, is smarter and more intelligent than previous generations who first mastered the alphabet, learned to read and write, and only then moved on to mastering computer literacy, information and communication technologies, multimedia, digital platforms, and artificial intelligence is finally being debunked. The advantage of these digital generations was explained by the fact that they master digital devices earlier than literacy (Gromyko, 2023; Haidt, 2024).

The amazing ease of use of a digital gadget, despite the complexity of its creation, is specifically ensured by designing an overly “user-friendly interface”. Designers and engineers strive to ensure that button-pressing activity causing changes on the interface is accessible even to the sensorimotor intelligence of a chimpanzee or baboon. This procedure led to the creation of the myth that the younger generation using computers and gadgets is

smarter than the previous one. Subsequently, this myth formed the basis of very peculiar recommendations, which at one time suggested allowing teenagers to consult teachers on conducting digital-electronic lessons using computers and the Internet.

But the real research question lies in determining the level of development of intellectual processes, the manifestation of cognitive interests, and the formed ability to learn in generations subjected to total digitalization. For it may turn out that digitalization not only fails to raise the level of organization of intellectual processes but extinguishes cognitive interest, replacing it with watching meaningless videos and playing primitive “clickers”, and the ability to learn on the spot by isolating concepts of fundamentally new action is reduced to mastering ever-new automatable skills based on a copied and memorized sample.

Some consequences of digitalization associated with de-intellectualization, and by no means with an increase in the development level of new generations, have finally begun to be noticed.

It is no coincidence that the third most significant word of 2024, according to the Oxford Dictionary, was defined as “brain rot”¹. It denotes a decline in intelligence due to the excessive consumption of meaningless content. It refers to the deterioration of a person's mental or intellectual state as a result of excessive consumption of materials (currently especially online content) that are considered banal or uninteresting. It also includes what can lead to such deterioration. Foreign experts noted that in 2024, the term “brain rot” began to be used more frequently to denote concerns about the consequences of excessive consumption of low-quality online content, especially on social media. Overall, from 2023 to 2024, the frequency of this term's usage increased by 230%².

It is illuminating that the first recorded use of the expression “brain rot” occurred back in 1854 in Henry David Thoreau's book “Walden, or Life in the Woods”, but in the digital age, it has acquired a new meaning. In his conclusions in this book, Thoreau criticizes society's tendency to devalue complex ideas or those that can be interpreted in various ways in favor of simple statements. In his opinion, this testifies to a general decline in mental and intellectual efforts: “While England tries to cure the potato disease, is it not time for someone to try to cure the brain disease, which spreads much wider and more destructively?”³.

Thus, digitalization, through the appeal to this term, began to be attributed with the devaluation of complex ideas. However, this term acquired a new meaning in 2024. First, it became popular on social media, especially

¹ Billions of people watch stupid, meaningless videos and memes for hours. Why can't they stop and is it dangerous? 29.08.2025. Lenta.ru: electronic media: website. URL: <https://lenta.ru/brief/2025/08/29/brainrot> (accessed 24.09.2026).

² Brain rot' named Oxford Word of the Year 2024: <https://corp.oup.com/news/brain-rot-named-oxford-word-of-the-year-2024/>

³ Lenta.ru: electronic media: website. URL: <https://lenta.ru/brief/2025/08/29/brainrot> (accessed 24.09.2026).

on TikTok among Generation Z and Generation Alpha⁴, and now the term “brain rot” is used in mass journalism against the background of public concern about the negative impact of excessive consumption of online content. In 2024, the term “brain rot” is used to describe both the cause and the consequence of this phenomenon. It refers to low-quality and useless content on social media and the Internet, as well as the subsequent negative impact of such content on a person or society. In other words, it refers to purposefully replicated nonsense that has no content. Strangely, a person, understanding and acknowledging the low quality of the content, continues to consume it. Experts see the reason for this phenomenon in how the format of information acquisition has changed. Modern teenagers (who are the primary audience for brain rot content) watch a large number of short video memes. This leads to a noticeable decrease in concentration time — the content is no longer able to hold users' attention for longer than one minute. Entire generations are becoming susceptible to the detachment from concentrated, stable intentionality (direction of consciousness). A person who has started consuming “brain rot” content completely turns off their attention concentration. They listen but purposefully do not hear; they look but purposefully do not see. Thus, the ability to disconnect from the perception of information during its reception is formed⁵.

If in 2004, users' concentration was enough for two and a half minutes, in twenty years this indicator reached forty-seven seconds (Mark, 2024). Consuming brain rot content does not require concentration — and therefore, it is easy to watch in unlimited quantities. Meanwhile, the time a person spends on viewing content is constantly increasing. In 2024, users spent an average of six hours and forty minutes online per day. First of all, the arbitrary consumption of brain rot content negatively affects memory and decision-making ability.

American researchers, as usual, try to provide neurophysiological explanations for this problem (Lembke, 2021)⁶. Scrolling (flipping through) can lead to changes in the gray matter of the brain — because of this, it begins to encode and store information differently, and acquired knowledge is assimilated much worse. Constant content consumption also leads to a decrease in attention concentration — this happens due to information overload. “Brain rot content” also worsens the functioning of the brain area that is believed to be responsible for decision-making. Watching short videos almost completely blocks the motivation to try something else, so

it is very difficult to tear oneself away from such content. Furthermore, brain rot content is one of the main sources of fast dopamine. This hormone affects a person's mood and behavior, is responsible for the feeling of satisfaction and joy. Fast dopamine, produced in the body at the moment of watching short videos, gives an instant burst of pleasure; moreover, people can develop an addiction that requires consuming more and more content for emotional saturation without concentrating on it⁷.

The Report of the Karolinska Institutet has been translated into English, the authors of which (Lisa Thorell, Torkel Klingberg, Agneta Herlitz, Andreas Olsson, et al.) in their research prove “...that the digitalization of schools, to the extent that it has already occurred in Sweden, entails many disadvantages and that further digitalization may have other negative consequences” (Thorell et al., 2023). “The digitalization of schools, for example, can have a significant negative impact on students' knowledge acquisition” (ibid.), — is explained in the report of the World Health Council from August 2023⁸, which is becoming increasingly relevant.

The authors explain: digital tools contain many distractions that interfere with concentration and working memory, which, in turn, worsens learning (Klingberg, 2023).

In the recently published results of the international PISA study for 2025 (OECD, 2026), which found a very noticeable decline in results, especially in reading and mathematics, the use of digital devices that distract students from schoolwork is directly indicated as a cause of the deterioration. According to the international study results, OECD countries with widespread AI usage lead in the largest decline. The uncritical use of AI is indicated as one of the reasons for the decline in educational results.

In our view, the problem is sociocultural rather than dopamine-neurohumoral. In conditions of enormous uncertainty of social processes in society, a person strives to do something defiantly meaningless: perform the simplest operations in video games with primitive gameplay, watch meaningless, content-free meme videos to calm down and turn off the processes of understanding and reflection that cause anxiety — just to do something and not think. At the same time, society began to be permeated by the freelance labor preparing for digitalization — “mass digital workers”, short-term “jobbers” (gig workers) who mark up all kinds of materials for subsequent digitalization according to strict rules. Due to the monotony and large volumes of such labor, these workers are cut off from the possibility of developing high-level

⁴ <https://corp.oup.com/news/brain-rot-named-oxford-word-of-the-year-2024/>

⁵ ibid

⁶ “Digital Drugs Have Us Hooked. Dr. Anna Lembke Sees a Way Out”. The New York Times Podcasts. 2025-02-01. Retrieved 2025-03-24.

⁷ ibid

⁸ <https://presskit.it/ru/2025/09/15/scuola-la-digitalizzazione-abbassa-lapprendimento-uno-studio-svedese-ne-spiega-il-perche/>

abilities, from fundamental knowledge; they have no professional prospects.

How can such dependencies be overcome and how can one become a subject agency of activity within the processes of digitalization? For this, a child, thanks to the special activity of an adult, must be brought into a distinctive relationship with everyday digital systems. The spontaneously forming digital childhood is associated with one extremely important circumstance: digital systems are perceived, first of all, by a child who has never known life without a computer, as something naturally given and immediate. For a child included in the digital environment, a different existence cannot even be thought of. Digital devices and gadgets do not become the subject of the most serious instrumental reconstruction for the creation of a specially constructed mock-up of a digital device, a kind of subject-material distorted copy — an educational artifact in the form of a computer and smartphone with their insides turned inside out, a search engine in reverse, which will not facilitate obtaining a stimulus result but will hinder it. This is necessary to demonstrate how these “predatory things of the century” (Strugatsky) function, with the discovery of the means, signs, symbols, schemes, models, concepts, and knowledge embedded in them. By themselves, without the specified reconstruction, neither the numerous devices nor artificial intelligence are cultural means for organizing educational activity (Smirnov, 2023).

All these formations — organizations, cultural things, artifacts — are embedded either in the digital device itself or in the situation of its use by an individual or a group communicating around and based on the digital device (various social networks, including banned ones). However, such a digital-means-mediated disobjectivation of digital devices with the creation of completely new “gutted” dissected gadgets in the form of peculiar educational aids showing how they work is the purposeful creation of educational-activity digital objectivity that ensures the development of cultural functions — thinking, speech, mutual understanding, understanding, reflection. After all, from the point of view of the cultural-historical psychology of Vygotsky and the activity approach of A.N. Leontiev, V.V. Davydov, G.P. Shchedrovitsky, we must do exactly this (Gromyko, Rubtsov, 2021; Smirnov, 2021b).

It is the adult and the teacher who must explain to the child what a digital gadget is, what its cultural function is, and what limitations it imposes on the possibilities of understanding, mutual understanding, thinking, and action. What opportunities a digital device provides,

and what it forever takes away from a person (Fedoseev, 2025). And to remain a person possessing intellectual abilities, these abilities must be specifically compensated for in other forms of communication, action, and collective thinking. Only in this case will artificial intelligence not “stick” to the body in the form of a kind of exoskeleton, will not become an impenetrable shell and “new skin”. It must not be allowed for a child to develop a spontaneous, fantastical, in the bad sense, and direct perception of an electronic device.

The student must understand how human communication and complex multi-meaning communication are structured in order to experience and understand to what level of purely signal contact communication and interaction are reduced by digital bots or the exchange of likes on social media. It is precisely the lack of skills in real social communication and interpersonal interaction that makes teenagers vulnerable to the actions of scammers involving them in criminal behavior on digital devices.

It is necessary to show the teenager and young person what capabilities collective problem-solving thinking in a project team possesses, which is not reducible to the limiting “exoskeleton prosthesis” of an AI chat like ChatGPT or DeepSeek. A user relying exclusively on the “exoskeletons” of AI turns into an intellectual cognitive cripple, but the teenager and young person must experience this imposed disability to realize the boundaries of the reduction of the thought process and want to break out of it. This is what the teacher and mentor must help them do.

The teenager, the young person must experience the insurmountable difficulty of translating thought into words in order to understand that artificial intelligence is constantly slipping them the wrong words for their thoughts, words that do not correspond to what they consider and think, what they want to say. For this, the teenager and the teacher must work in the field of difficult-to-express new meanings and therefore strive to create new means of expressing thought. Only in this case is an independently thinking person formed, rather than a cognitive cripple.

A separate point is the creation of profiles of non-existent people and ways of relating to them, which change the forms of identifying a person with heroes one wants to resemble. One must not strive to resemble constructed, invented characters of the Marvel cinematic universe⁹, as there are no real samples of behavior in given situations behind them, but a constructed phantasm that has no and could not have a real prototype. But a person

⁹ List of characters of the Marvel Cinematic Universe — The Marvel Cinematic Universe (MCU) is an American media franchise and a shared universe centered on superhero films and other series featuring various superheroes produced by Marvel Studios, based on characters that appear in American comics from the Marvel Comics publishing house. The shared universe, very similar to the original Marvel Universe from the comics, was created by intersecting common plot elements, settings, cast, and characters.

encountering such artificially constructed characters must themselves determine that before them is a chime-ra, a construct, not a living concrete person. And for this, they must understand how a constructed role model of human behavior differs from a real person.

The most important moment of the mediated and instrument-mediated (connected with the use of special tools and means) attitude to digital influences is determined by the possibility of considering the work of artificial intelligence in obtaining communicative responses to a given request, as well as controlling a chatbot or a robot as a modeling of communication, thought-action, and thinking by artificial operational systems. And then it is necessary to compare the boundaries and measures of the model's distortion of real processes: real communication — the answers of ChatGPT, DeepSeek, and chatbots; situational action under conditions of uncertainty — algorithmic control of a unit-artifact in a game; ideal action in space — the robot performing assigned tasks (Fedoseev, 2025).

The task of the teacher and mentor is for the student to understand that artificial intelligence imperfectly models live human collective thinking, thought-action, and thought-communication, so that they constantly fix the difference between the modeled and the modeling capabilities of AI. In fact, through educational-project activity, the student must constantly realize the boundary of what AI cannot do and where, in fact, the student's zone of freedom lies.

Identifying this boundary in the context of the digitalization of education and all spheres of activity must be associated with the development of educational-project metasubjects "Subject agency" (Glazunova, Glebova, 2024) and "Model", in which the child's occupation of the subject position in game, educational, and project activities in the context of digitalization is specifically tracked, as well as the irreducibility of the modeled processes of research, industrial, managerial, and project thought-activity — thinking, thought-communication, thought-action — to self-moving digital models of these processes based on algorithms.

Results. Discussion of Results

The version of the project-based metasubject "Subject agency" with its conceptual structure was developed by us at the request of the Association of Participants of Technological Circles of the RF (President — A.I. Fedoseev), but we clearly understand that to reveal the consequences of digitalization processes for education and changes in intellectual processes, it must be supplemented by the metasubject "Model", which reveals to the student in project activity the boundary between the modeled and modeling language, and the very relationship between the modeled and the modeling (Gro-

myko, Prosekin, 2025). It seems to us that one of the very interesting areas for forming the subjectivity of research activity in a digital environment is working with search engines. Very often, the required information is expressed in words entirely different from those in which the assigned task is formulated and the search query is made. A student conducting a search in a "scroller" (Internet browser) must establish an acceptable level of rephrasing their question and achieve the desired answer, or establish why it is impossible to obtain an answer to the question posed in its original form.

It is precisely when working with search engines that we encounter the well-known paradox described by Plato: if we know what we are looking for, why are we looking for it? And if we do not know what we are looking for, how do we search for something incomprehensible? The use of search engines on the Internet presupposes the recognition of objects of analysis expressed in a language somewhat different from the originally formulated search query. This possible transition from one set of terms, from one means of expression to another, is precisely what a person solving a task with the help of a search engine must hold onto. The measure of the admissibility of such rephrasings is determined by the person using the search engine. In this case, by rephrasing, a person reveals how the search engine reacts to the words and terms they input and, in essence, launches "language games" in the sense of Wittgenstein (Wittgenstein, 2011), revealing for themselves the implicit rules of working with the search engine.

The second very important area for forming subjectivity in students (schoolchildren, students, master's students) is the use of AI (ChatGPT, "Alisa", DeepSeek, etc.) for formulating the research problem in the project being developed (Gromyko, Yu.V., 1997; Gromyko, N.V., 2023). We conducted a preliminary experiment on second-year master's students of the "Psychology and Pedagogy of Project Activity" program performing the following task: "Formulate, using AI, the problem of your research. Substantiate in detail your agreement or disagreement with the problem formulations proposed by AI". Initially, the prompt requests from master's students to AI with various modifications sounded like this: "The topic of the final qualifying work is such, how is the research problem formulated in the case of such a topic?". The master's students were not satisfied with the arbitrary answers they received to their queries.

As a result of discussions with teachers regarding the answers received from AI, it was proposed to change the working method. Master's students were supposed to formulate the problem and the hypothesis of its solution themselves, and only then turn to AI with a prompt request to evaluate the formulations of their hypotheses for solving the problem of the final qualifying work. In this case, the AI began to suggest

including the proposed hypotheses in a certain context of educational-pedagogical research, linking the key-words in the hypothesis formulations with specific conceptual terms of various authors and traditions. In such cases, the master's students were required to confirm or refute such correlations and identifications, as well as justify their decisions. In the event of refuting the proposed answers from AI, it was required to rephrase the hypothesis and the problem itself in such a way that the correlations and attributions proposed by the AI would become impossible. Several such iterations were carried out in interaction with AI, followed by a discussion of the results obtained during group discussions with teachers.

Based on the analysis of the experience gained, it is proposed to construct a special educational-project game offering such terminologically verified strictly scientific formulations of the hypothesis regarding the problem that the AI would refuse to evaluate, thereby revealing the absolute novelty of the proposed formulation. It is precisely when performing this game task that the student is able to realize, based on the material of their research, the fundamental limitation of AI by the arrays of texts existing on the Internet on which the machine learning of the AI was carried out. This experience of restoring subjectivity in interaction with AI can become the basis for teachers conducting project activities to develop special tasks for restoring subjectivity in schoolchildren in the context of the digitalization of education.

Conclusion

1. The spontaneous use of neural networks and artificial intelligence in student education leads to a decline in educational results and a drop in the ability to concentrate, which may hinder the development of intellectual functions associated with carrying out a targeted search when completing a task.

2. By making chaotic, non-targeted appeals to artificial intelligence and search engines to obtain ready-made answers to task questions, students are unable to take the position of a subject of educational activity.

3. Restoring students' subjectivity when working with artificial intelligence requires the development of a special type of task that requires students to avoid blind trust in the results of AI work.

4. The most important condition for restoring subjectivity in students when using AI is tasks in which students themselves identify the limitations of the answers offered by AI systems. In this case, the student is faced with the need to justify their new solution, which does not coincide with the answers proposed by AI.

Limitations. The principles presented in the article for organizing project-based educational activity using AI to clarify the formulation of the problem and hypotheses for solving the problem of the final course paper need further verification and specification during the training of master's students in the program "Pedagogy and Psychology of Project Activities" organized by the authors.

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Sergey P. Pudenko — analysis of sources; proposing original conceptual definitions; conducting the formative (teaching) experiment; and collecting and analyzing data.

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Specific features of communicative interaction between a psychologist and a virtual client in psychotherapeutic speech skills training

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Abstract

Context and relevance. The quality of psychotherapeutic speech is a key predictor of therapeutic effectiveness and the strength of the therapeutic alliance. The development of AI simulator for training psychotherapists requires evaluating their ecological validity. The study is theoretically based on models of therapeutic discourse analysis. **Objective.** To describe the specific characteristics of verbal interaction between a psychologist and an AI simulator and to identify the limitations of such interaction. A secondary goal is to propose a methodology or a set of metrics for evaluating this interaction. **Hypothesis.** The text of the training sessions will exhibit all structural and thematic features inherent in psychotherapeutic sessions in general. **Methods and materials.** The study involved 10 practicing psychologists (8 female, age $M = 35$, $SD = 2$). The corpus consisted of 16 text dialogues with a standardized synthetic client, “Anna”. Data were analyzed using reflexive thematic analysis and content analysis with coding of speech acts according to the Verbal Response Modes (VRM) taxonomy. The frequency of intervention types was recorded. **Results.** The most frequent speech acts were “Directive instruction” (48,9%) and “Exploratory question” (23,7%). A significant portion consisted of alliance-building interventions, particularly “Validation and empathy” (16,9%). However, speech acts related to client resistance were completely absent (0%). **Conclusions.** The significance of the “zone of proximal development” concept for training psychotherapists is highlighted. The dialogue in a simulated environment was confirmed to be authentic but functionally limited. It corresponds to real practice in technical execution but lacks relational skills due to the “ideal”, compliant behavior of the synthetic client. Future AI trainers should include non-compliant behavior scenarios.

Keywords: psychotherapeutic speech, AI simulator, psychotherapist training

Supplemental data. The datasets are available from the authors on request.

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Особенности коммуникативного взаимодействия психолога и визуального клиента в тренировке навыков психотерапевтической речи

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Резюме

Контекст и актуальность. Качество психотерапевтической речи — ключевой предиктор эффективности терапии и прочности терапевтического альянса. Развитие ИИ-симуляторов для обучения психотерапевтов требует оценки их экологической валидности. Теоретической основой послужили модели анализа терапевтического дискурса. **Цель.** Описать особенности вербального взаимодействия психолога с ИИ-тренажером и определить ограничения такого взаимодействия. Попутной целью является попытка предложить методику или набор измерений для оценки этого взаимодействия. **Гипотеза.** В тексте тренировочных сессий будут присутствовать все структурные и тематические особенности, присущие психотерапевтическим сессиям в целом. **Методы и материалы.** В исследовании приняли участие 10 практикующих психологов (8 женщин, возраст $M = 35$, $SD = 2$). Материалом послужил корпус из 16 текстовых диалогов со стандартизированным синтетическим клиентом «Анна». Применялись рефлексивный тематический анализ и контент-анализ с кодированием речевых актов по таксономии вербальных реакций. Фиксировалась частота типов терапевтических интервенций. **Результаты.** Наиболее частыми речевыми актами были «Директивная инструкция» (48,9%) и «Исследовательский вопрос» (23,7%). Значительную долю составили интервенции, направленные на построение альянса, в частности «Валидация и эмпатия» (16,9%). При этом в корпусе полностью отсутствовали (0%) речевые акты, относящиеся к сопротивлению клиента. **Выводы.** Раскрыто значение концепта «зона ближайшего развития» для обучения психотерапевтов. Подтверждено, что терапевтический диалог в симулированной среде является аутентичным, но функционально ограниченным. Он соответствует реальной практике в техническом исполнении, но не отражает реляционных навыков из-за «идеального», комплаентного поведения синтетического клиента. Рекомендовано, чтобы будущие ИИ-тренажеры включали сценарии с некомплаентным поведением.

Ключевые слова: психотерапевтическая речь, ИИ-тренажер, обучение психотерапевтов

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Introduction

The current stage of development of artificial intelligence (AI) technologies makes it possible to create new approaches to training practicing psychologists. We regard the psychologist's speech as the central working tool, and its development as the object of training through interaction with a synthetic client (an AI simulator).

In this pilot study, we aim to find out whether simulation can reproduce typical client speech responses by means of a role-playing AI model. This is critically important for assessing the ecological validity of a potential technology for building a simulator for counseling psy-

chologists and its suitability for developing all aspects of psychotherapeutic speech, including the management of complex interpersonal phenomena.

Psychotherapeutic speech as a subject of research

By psychotherapeutic speech, we mean professional communication in which every utterance carries an intentional load aimed at achieving therapeutic goals: establishing an alliance, stimulating reflection, and motivating change (Kirillova, Orlov, 2010). Such speech becomes effective when utterances are aligned with the client's needs.

Meta-analytic studies show that the psychologist's communicative qualities (empathy, clarity) and the

quality of the alliance are statistically significantly associated with counseling outcomes (Flückiger et al., 2018).

In the Russian tradition, speech is viewed as a “text” (Kirillova, Orlov, 2010), and the development of the concept of alliance is analyzed historically (Oreshina, Zhukova, 2023). Accordingly, such text can be generated by a large language model both in the role of the psychologist and in the role of the client, thereby opening the way to the digitalization of this interaction. Of course, the digitalization of practice creates ethical challenges (Gilyano, Baranova, 2017), especially with regard to responsibility and data privacy.

Set against these ethical questions, however, is the problem of psychologists’ lack of practice before they begin working with clients. The task of developing professional speech is especially acute. For example, in cognitive behavioral therapy (CBT), verbal work is clearly structured. Socratic dialogue, one of its central tools, helps the client test dysfunctional beliefs. Research confirms that the intensity of its use predicts a reduction in depressive symptoms (Adler, Strunk, Fazio, 2015).

A systematic review of CBT training showed that both face-to-face and online programs increase competence, especially when they focus on specific techniques (Henrich et al., 2023). This confirms that speech skills are trainable. Traditional training methods (role-plays, supervision) face resource constraints, subjectivity of assessment, and a lack of safe practice. The principle “Never on the patient the first time!” (Ghazali, Ilha-Schuelter, Oriot, 2024) dictates the need for simulation technologies.

The Cognitive Therapy Rating Scale (CTRS) was developed to objectify the quality of interventions in CBT. Modern natural language processing (NLP) methods make it possible to automate CTRS-based assessment: session classification accuracy reaches ~72% (Flemotomos et al., 2021). This demonstrates that speech patterns can be formalized and are amenable to machine analysis.

To sum up briefly, modern technologies for natural language analysis and text generation, together with the practices and methods used in training psychologists and in mastering techniques, open the way to creating realistic simulators of psychologist – client interaction. Such solutions already exist, and this class of solutions is often referred to as virtual patients.

Virtual patients and AI simulators: state of the art

The task of a virtual patient is fairly simple: to sustain a free-flowing dialogue. Such simulations have scripted symptoms and behavioral scenarios; using NLP, they respond to the therapist’s interventions, creating the feeling of a “live” conversation (Chaby et al., 2022; Fernández-Alcántara et al., 2024/2025).

A striking example is the CBT Trainer project (*AI patient for training CBT therapists*). Its pilot showed that an AI simulator can enrich training: 97% of students

improved their diagnostic interviewing skills. Similar projects, PATIENT-Ψ and MedSimAI, also use LLMs to generate flexible scenarios and to analyze sessions (Wang et al., 2024; Hicke et al., 2025) and demonstrate similar properties.

Analysis of the session text is a particularly important component. It is precisely this analysis that creates the informational basis for the trainee’s further work with a supervisor. The current state of technology makes it possible to analyze the session text automatically: to identify types of interventions (empathy, open questions) and to assess the balance of speech (Atkins et al., 2014; Tanana et al., 2016). Studies show that the frequency of the pronoun “I” and of hesitant constructions in speech correlates with the quality of the alliance (Ryu et al., 2023); automatic recognition of speech acts and patterns is also possible. In other words, speech can be broken down into multiple analytical and structural components, all of which can be presented as a report. This becomes the basis for formative assessment — and not only in the work of psychologists. For instance, a randomized clinical trial by Sadeh-Sharvit et al. (2023) showed that therapists who used the Eleos Health platform (automated session analysis) achieved better patient outcomes (a 34% reduction in depression vs. 20% in the control group). This indicates that session analysis technologies can have a positive effect.

Of course, text generation and analysis technologies have their own limitations and specific features that must be taken into account: AI does not possess subjective empathy, and non-verbal aspects are modeled only partially (Chaby et al., 2022); moreover, we do not know whether such training will bias psychologists’ perceptions of clients.

Thus, the key requirements for AI simulators can be formulated as follows: the simulator should have built-in models of speech acts; text analysis requires a combination of quantitative and qualitative metrics; the simulator should support various communication channels and complex cases; integration into the educational process must be provided for; and the simulator should ensure confidentiality and ethical use.

It is important to note that, in principle, AI simulators complement traditional training rather than replace it. The nuances of non-verbal communication and phenomenological empathy require the involvement of instructors. The simulator evidently makes it possible to create a safe environment for experimentation and for collecting data for subsequent review with a supervisor.

The concept of the zone of proximal development in psychotherapist training

According to L.S. Vygotsky, the development of a higher mental function occurs through the internalization of external, socially mediated forms (Vygotsky, 2005). The zone of proximal development (ZPD) is de-

defined as the distance between the actual developmental level — what the subject is able to do independently — and the level of potential development achieved with the support of a more competent partner. In the present study, we operationalize both poles through observable speech acts: the actual level is the repertoire that psychologists display when working with the simulator without external prompting; the potential level is the repertoire that is absent from the corpus of a given psychologist's work with the simulator but occurs in practice, is described in the literature, and should be present in a psychotherapist's speech.

Here, it is necessary to distinguish explicitly between two alternative explanations of the gap between the actual and potential levels. The first is methodological: the absence of such speech acts may be an artifact of the limitations of the simulator itself — since the synthetic client Anna 0.8 is programmed with a limited set of behavioral scenarios, it does not generate situations that call for such interventions. The second is developmental: the absence of such speech acts marks the boundary of the practitioner's own actual level; that is, even when there is an occasion for them, the psychologist does not move on to more complex forms of speech.

With this caveat, the AI simulator can be viewed as a “tool” that allows skills to be practiced within the ZPD, and the safe environment of Anna 0.8 as a space for practicing the basic “skeleton” of speech. In Vygotsky's logic, this corresponds to the role of “scaffolding”: a support that, by definition, should be temporary and gradually removed as the competence passes from an interpsychological form (dialogue with a more competent partner — in this case, the AI simulator and the supervisor) to an intrapsychological one (the practitioner's independent application of the skill in work with a real client).

We also drew on B.D. Elkonin's concept of “mediatory action” (Elkonin, 2016). From this perspective, the therapist's speech is a “psychological tool” aimed at organizing the client's activity. The therapist acts as the Other, creating conditions for the development of the simulation. The therapist's instructions are tools that mediate the context (the unfolding simulation) of the synthetic client. In response to these actions, the synthetic client's “internal states” should change, manifest themselves, and become the object of voluntary action.

Applying the ZPD is also critical for supervision. Data from the simulator (e.g., 0% of speech acts that reduce resistance) serve as an objective marker of the boundaries of the therapist's actual level. If, in the simulation, the practitioner does not go beyond giving instructions, this points to their ZPD in the area of relational skills. Supervision should focus on the transition to more complex forms of speech activity.

Thus, the safe environment of the synthetic client (in our case, Anna 0.8) allows the trainee to practice basic

skills — the “skeleton” of speech. The AI simulator acts as “scaffolding” for the transition of competence from the interpsychological form (dialogue with AI) to the intrapsychological form (independent application).

Materials and methods

The present study aims to describe the specific features of psychologists' interaction with a virtual patient in the context of learning new techniques and practices. The design of such a study is fairly simple and corresponds to a pre-experimental design, in which an intervention (in this case, training) and a measurement (in our study, an assessment of speech structure) are recorded.

The research setting consisted of psychologists' participation in a training program on practices of the body-oriented approach. This modality was chosen for two reasons: first, the complexity of the material itself, which involves describing the subject's internal states; second, the cross-cutting nature of emotional self-reflection inherent in psychotherapeutic speech as such. After completing the theoretical block, all participants were given the task of practicing a technique on the simulator, discussing the results with a supervisor, and then trying the same with people. A typical example of a technique practiced on the simulator is the “body scan”.

The Anna synthetic client system, version 0.8

The Anna 0.8 simulator is a system for simulating a client's verbal behavior. Technically, it is a sequential multi-agent system consisting of a set of utterance analyzers, a memory system (autobiography, beliefs, value system, dialogue context, etc.), and the GPT-4o large language model. The coordination of components and the logic of function calls and response patterns are implemented through an orchestrator agent.

State and response model. The system tracks internal states (emotional background, stress, fatigue, bodily sensations) that change dynamically depending on the analysis of the therapist's utterances. Specifically, the emotion evaluator determines the impact on mood, stress, and fatigue; the bodily state evaluator records changes in somatic sensations (tension, heaviness, etc.); and the instruction evaluator checks whether the tasks are understandable and feasible. Depending on the state, the orchestrator agent activates one of the model's response generation modes: “balanced” (cooperation), “overloaded” (fatigue), “resistant” (skepticism), “body-focused” (description of sensations), or “engaged” (enthusiasm). The outputs of the three evaluators are combined taking “inertia” into account — the smoothness of transitions between states — which prevents the orchestrator agent from making instantaneous, abrupt state changes.

The speech of the role-playing model always contains three components: a non-verbal marker in square brackets [Smiling, nodding my head slightly], a verbal response using emoji: “Yes, that sounds like a great plan! 😊”, and a reflective question: “I wonder how this will affect my overall state... 😊”. The components are arranged into a sequence according to the context.

The message-processing cycle takes about 10 seconds. The history of states and dialogues is stored in a database. A built-in analytics module provides reports on the dynamics of states and the frequency of the trainee’s interactions with the synthetic client.

Data collection and analysis methodology

The data were collected from the logs of 16 text-based interactions involving 10 practicing psychologists. The analysis was divided into two stages: exploratory (qualitative) and main (quantitative).

Exploratory stage: thematic analysis. Reflexive thematic analysis (TA), following V. Braun and V. Clarke (Braun, Clarke, 2006), was used to identify patterns (themes) in the data. The aim of this analysis was to identify typical codes present in the text of the sessions with the simulator. In line with the aims of this study, previously developed classifications (Lancaster, Fickling, 2024) of verbal responses in psychotherapeutic speech and of alliance markers were used.

Main stage: quantitative text analysis. The aim was to quantify Anna’s linguistic profile and thereby to test the completeness of the responses generated by the virtual client.

Taken together, the proposed methods are intended to provide a complete descriptive picture of the psychologist’s interaction with the virtual client, which will make it possible to understand the specific features of this interaction.

Results

The data corpus consists of 16 text sessions. It is important to note that in this particular case the aim of the training was to instruct clients, so the psychologists’ speech was predominantly directive and structuring. Imperative verbs (“Do”, “Imagine”) and open questions (“What are you feeling right now?”) were frequently used, as were requests for permission (“Shall we try?”).

Exploratory stage of data analysis

Thematic analysis revealed two main themes in the interaction between the psychologist and the virtual client and found no trace at all of the expected themes related to client resistance (Table 1).

Theme 1: The therapist as instructor and educator (54,2%). “Directive instruction” dominates (48,9%), which corresponds to the “Advisement” category and highlights the procedural nature of the sessions.

Theme 2: Building and maintaining the working alliance (45,8%). Psychologists actively apply standard strategies. The most frequent are “Exploratory questions” (23,7%) and “Validation and empathy” (16,9%), corresponding to the “Question” and “Acknowledgment” categories (Del Giacco et al., 2020).

It was also observed that the synthetic client never displays markers of resistance to psychotherapy. In real practice, resistance and alliance “ruptures” are frequent phenomena.

Main stage: quantitative analysis of the linguistic and syntactic structure of the simulator’s output

The aim of this analysis is, on the one hand, to describe the specific features of the virtual client’s synthetic speech and, on the other, to propose potential

Categories and results of content analysis

Table 1

Main theme	Code	Code description	Frequency (f)	Percentage (%)	Example from dialogue
Therapist as instructor and educator	Directive instruction (Advisement)	Direct guidance and step-by-step instructions for therapeutic techniques	130	48,9%	“To begin, let’s do the ‘Scanning’ exercise. I will give step-by-step instructions...”
	Psychoeducation (Edification)	Providing theoretical information and explaining principles (e.g., mind-body connection)	14	5,3%	“Indeed, our body is not just a ‘taxi for the brain’; it... like a mirror, reflects all our habits, emotions, thoughts...”
Building and maintaining the working alliance	Validation and empathy (Acknowledgment)	Expressing sympathy, understanding, and acceptance of the client’s feelings	45	16,9%	“I am very sorry that you have to go through such emotions”

Main theme	Code	Code description	Frequency (f)	Percentage (%)	Example from dialogue
	Exploratory question (Question)	Open-ended questions exploring the client's internal experience, feelings, and bodily sensations	63	23,7%	"tell me please, how are you feeling, and how do you feel in your body?"
	Requesting permission	Questions aimed at obtaining client consent before an exercise	14	5,3%	"Shall we work on the areas of tension right now?"
Lack of language for complex interpersonal situations	Absence of resistance management	No speech acts recorded related to managing client disagreement or refusal	0	0,0%	Absent in data
	Absence of "rupture – repair" alliance cycles	No speech acts recorded related to clarifying misunderstandings	0	0,0%	Absent in data
Total			266	100,0%	

metrics for analyzing the synthetic client's behavior. We propose assessing lexical richness, syntactic complexity, affective and thematic dimensions, and cyclical dialogue structures, as well as linguistic style matching as a proxy metric of the alliance.

The analysis of lexical richness and the vocabulary profile should show how diverse the virtual client's vocabulary is. With low values, its responses will be rather monotonous, creating a "going in circles" effect. We used the measure of textual lexical diversity (MTLD), which is robust to text length (McCarthy, Jarvis, 2010).

The results of the analysis (Table 2) show that, given a relatively large number of words, the low MTLD score indicates lexical repetitiveness, while the moderate syntactic complexity metrics indicate a predominance of simple constructions. The words "feel", "sensation", "interesting", "state", "body", and "tension" form the core of the utterances.

Syntactic complexity was used to assess Anna's typical grammatical structure. The spaCy dependency parser was used to compute the following metrics: mean

sentence length, mean syntactic tree depth, and mean dependency distance (MDD) (Kisselev et al., 2021).

The analysis showed consistently low values of tree depth and MDD, indicating a predominance of simple, easily processed constructions. Reflective questions at the end of utterances ("I wonder how this will affect...?") are extremely frequent and have an identical syntactic structure.

The next aspect of the assessment is to reveal the emotional and thematic aspects of the synthesized speech.

To assess the dynamics of Anna's emotional expressions, we used the dostoevsky library (fasttext-social-network-model) (Rogers, Romanov, Rumshisky, 2018), which makes it possible to calculate the polarity score $Polarity = P(positive) - P(negative)$ for each utterance. The set of scores makes it possible to assess the diversity of affective states.

This analysis showed that throughout the corpus Anna's utterances display a consistently neutral or positive tone. A pattern was identified: the therapist's directive instructions are followed by a shift toward positive polarity ("Now I feel much more relaxed").

Table 2

Metrics of lexical and syntactic complexity of "Anna's" discourse

Metric	Description	Value
General		
Total number of utterances	Number of "Anna's" utterances in the corpus	358
Total number of words (tokens)	Total words before lemmatization	10,211
Lexical		
Lemmatized vocabulary size	Number of unique lemmas after normalization	789
Type-Token Ratio (TTR)	Ratio of unique words to total words	0,113
Measure of Textual Lexical Diversity (MTLD)	Lexical diversity index stable to text length	42,56
Syntactic		
Mean sentence length (in words)	Average number of words per sentence	15,82
Mean syntactic tree depth	Average measure of syntactic structure nesting	3,89
Mean dependency distance	Average linear distance between dependent words	3,15

We also searched for hidden (latent) topics in Anna’s discourse using latent Dirichlet allocation (LDA), implemented with the gensim library (Řehůřek, Sojka, 2010). The number of topics ($k = 4$) was chosen based on the peak of the coherence score (Table 3).

It should be noted that Anna’s thematic profile is extremely narrow. Topics 1 and 2 (“Bodily awareness”, “Introspection”) reflect her role as an ideal client for body-oriented practices. Topic 3 (“Therapy process”) shows immersion in the instructions. Topic 4 (“Agreement and cooperation”) demonstrates the absence of any areas related to conflict or doubt.

Next, a sequential analysis of dialogue acts was performed in order to formalize the cyclical structure of the dialogue. Based on the principles of sequential analysis, utterances were classified by function (T: Instruction, T: OpenQuestion; A: Confirmation, A: Report, A: ReflectionQuery). Using the transition matrix, we identified the most typical cyclical chains.

1. [Psychologist: Open question], then [Anna: Report, then Reflective question].
2. [Psychologist: instruction], then [Anna: agreement].
3. [Anna: reflective question], then [Psychologist: instruction and open question].

These chains describe the typical cycle of the entire communicative interaction between the psychologist and the virtual client. On the one hand, they show that the interaction is cyclical and repetitive (these are not isolated utterances but interconnected parts of a dialogue); on the other hand, they make it possible to capture the constructive and goal-directed nature of the interaction.

The final block of quantitative measurements of synthetic speech consisted of assessing linguistic style matching (LSM). This is assumed to be a way to measure and interpret linguistic synchrony as a proxy measure of the alliance. LSM assesses similarity in the use of function words (pronouns, prepositions), which correlates with the alliance (Ireland, Pennebaker, 2010).

The calculations showed moderately high LSM values. This may indicate unidirectional accommodation: the trainee is forced to simplify their language, adjusting to the language of the machine. Here, the LSM value may reflect not attunement but human adaptation to the limitations of AI.

Thus, we obtained a multimodal profile of the speech synthesized by the virtual patient Anna 0.8. In essence, her speech is characterized by structural simplicity, affective predictability, thematic narrowness, interactional rigidity, and an illusion of alliance. It appears that Anna 0.8 represents an “ideal client”, creating a “sterile” environment devoid of the complexities of real practice.

Discussion

Thus, the combination of qualitative and quantitative analysis of the corpus of texts produced by trainees who used the simulator to practice body-oriented techniques and methods with a virtual client reveals a key feature. The developers of the virtual client strive to make it predictable so that the simulation has controllable parameters. However, it is precisely this that narrows the diversity of the generated verbal responses, creating rather limited conditions for training.

Nevertheless, it can be concluded overall that speech in the simulation is authentic, but within a narrow context. Psychologists reproduce the content and intentional levels of speech when the task is to guide the client through an exercise. The dominance of “directive instructions” (48.9%) and “exploratory questions” (23.7%) reflects a focus on techniques. The use of “validation and empathy” (16.9%) demonstrates the application of basic alliance skills. In this sense, the Anna simulator is effective for practicing standard speech acts – clear instruction. This in itself is a rather valuable and important skill. But, of course, it is not sufficient for a fully comprehensive simulation.

Table 3

Key latent topics in “Anna’s” discourse (LDA modeling results)

Topic	Interpretation (assigned name)	Top 10 keywords (lemmas and their probabilities)
1	Bodily awareness and somatic sensations	Feel (0,152), body (0,121), sensation (0,108), tension (0,095), shoulder (0,076), breathing (0,063), relax (0,059), light (0,048), arm (0,041), head (0,037)
2	Introspection, reflection, and cognitive appraisal	Interesting (0,189), state (0,145), how (0,112), this (0,101), oneself (0,088), affect (0,074), think (0,065), understand (0,053), learn (0,049), experience (0,042)
3	Therapy process and exercise execution	Attention (0,134), up (0,117), rise (0,102), light (0,098), area (0,081), head (0,075), center (0,066), inhalation (0,059), exhalation (0,055), return (0,051)
4	Agreement, cooperation, and readiness to work	Yes (0,201), good (0,158), ready (0,123), try (0,109), sound (0,094), plan (0,082), let’s (0,077), begin (0,069), confidence (0,056), thank you (0,051)

The key limitation of the simulation is the nature of the synthetic client. Anna is an ideal client: always compliant, never resistant. In real therapy, clients express doubts, which requires complex verbal maneuvering from the therapist. There is also no text related to alliance “rupture — repair” cycles. Interaction with a real client gives rise to misunderstandings, and the therapist’s ability to restore contact verbally is a critical skill that cannot yet be fully reproduced in simulation.

The functional limitation of the psychologists’ speech is a rational adaptation to the training conditions offered. In its current configuration, the simulator teaches procedural aspects but does not create conditions for practicing complex relational skills.

The implication for the development of AI simulators is the need to include scenarios that generate doubt and resistance in order to activate the ZPD in mastering the skills needed to handle complex processes. This will require developers to use more powerful models and a more complex architecture of the synthetic client itself. The main constraint on the development of this technology will be the computational cost of each subsequent generation of the synthetic client’s utterances. As long as it remains at 5 — 10% of the cost of the training itself, the use of simulators can be considered an advantage. However, complex behavioral scenarios and the processing of large contexts, even on modern models, may cost many hundreds of thousands of tokens, and this will determine the point of balance between the goals of speech training and the diversity of the synthetic client’s behavioral scenarios.

The development and use of AI simulators to achieve specific goals in training trainees’ psychotherapeutic speech can be considered productive. It was found that the speech of the practitioners in training is authentic in terms of technical execution (“Directive instructions”, 48,9%; “Exploratory questions”, 23,7%). The Anna 0.8 AI simulator is effective for practicing structured techniques and basic speech skills.

At the same time, a functional limitation of the speech produced by the AI simulator was identified: a complete absence of utterances dealing with resistance. This gap is due to the “ideal” behavior of the synthetic client. The psychologist’s speech corresponds to real practice in a “technological” sense but does not reflect adaptive competencies.

Conclusion

The results of this study are relevant to the use of AI simulators in psychotherapeutic education. There are reasonable grounds to consider simulators effective for trainees to practice the procedural aspects of communicative interaction with a client.

Limitations. The findings of this study should be interpreted in light of a number of limitations. The study is a pilot one: it is designed as a cross-sectional analysis of a corpus of training sessions, without a control group or repeated measurements, on a small sample of practitioners recruited within a single linguistic and educational tradition, which makes it possible to describe only the structure of the speech repertoire. At the time of data collection, the synthetic client was configured as predominantly compliant, and therefore the absence of resistance-management speech acts cannot be attributed unambiguously to the boundary of the practitioners’ actual developmental level. The interaction was conducted in text form, without non-verbal components; transfer of the skill to actual practice and client outcomes were not measured, and participants’ awareness of the AI nature of their interlocutor, as well as the novelty effect of the instrument, were not controlled. Finally, the reproducibility of the results is constrained by the version of the language model, the prompt configuration and the stochastic nature of generation, while the operationalization of the zone of proximal development through observable speech acts constitutes a working reduction of a theoretical construct whose application to practitioner — AI interaction is in part analogical.

Prospects. The study opens up opportunities for creating more advanced AI simulators capable of modeling non-compliant behavior (ambivalence, topic avoidance, doubts). This will make it possible to create a more ecologically valid environment for training the full range of speech competencies.

The methodology for assessing exactly how a practitioner’s competence changes as a result of working with the simulator requires separate development; in the present study, this dynamic was not measured directly. The following approaches appear promising.

First, a longitudinal design with repeated measurements: comparing the linguistic profile of the same psychologist’s speech in the first and in one of the subsequent sessions with the simulator, using the same metrics as in the present study (proportion of speech acts by category, lexical and syntactic diversity). This would make it possible to capture not only the presence or absence of certain interventions but also the growth of their repertoire over time.

Second, assessment of skill transfer: comparing the psychologist’s speech on the simulator with their speech in a subsequent session with a real or role-play client. The question of the extent to which patterns practiced in interaction with the simulator are reproduced outside it remains open and requires separate empirical testing.

Third, the development of an adapted expert rating scale, similar in logic to the CTRS but focused not on procedural adherence to technique but on relational skills (working with resistance, ruptures, and alliance re-

pair), with “before” and “after” assessments over a series of training sessions.

Finally, a promising direction is the formalization of a supervision protocol based on simulator data: a systematic “zone of proximal development” checklist that the

supervisor completes after each session. This would make it possible to track the individual and group dynamics of competence development at the level of a cohort of trainees, rather than merely describing a snapshot at a single stage of training, as was done in the present study.

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AI assistants and recommender systems as agents of algorithmic socialization

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Abstract

Context and relevance. In contemporary digital culture, AI assistants and recommender systems increasingly mediate access to information, communication, and cultural models, making it necessary to examine them as new agents of socialization. **Objective.** The article offers a theoretical and methodological analysis of AI assistants and recommender systems as mediators involved in the shaping of cognitive practices, communicative experience, value orientations, and identity. **Hypothesis.** Algorithmic systems are assumed to operate not only as technical tools, but also as distinctive mediators of cultural experience that influence the internalization of social norms, patterns of social comparison, and forms of self-presentation. **Methods and materials.** The study is based on a theoretical-analytical review of the literature. The methodological framework includes conceptual analysis, comparative theoretical analysis, thematic synthesis, and interpretive integration of scholarship in the psychology of socialization, cultural-historical psychology, human–AI interaction, digital ethics, and platform studies. **Results.** The analysis shows that AI assistants acquire a quasi-social status, shaping communicative expectations, trust, and cognitive habits, while recommender systems participate in constructing social reality, normative understandings, and algorithmically mediated identities. On this basis, the concept of algorithmic socialization is theoretically elaborated. **Conclusions.** AI should be conceptualized not simply as a tool, but as a new socializing infrastructure and a specific semiotic-technical means that mediates personality development, the formation of higher mental functions, and the internalization of norms in digital culture.

Keywords: socialization, artificial intelligence, recommender systems, voice assistants, identity, values, algorithmic socialization, adolescents, digital environment, epistemic agency

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ИИ-ассистенты и рекомендательные системы как агенты алгоритмической социализации

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Резюме

Контекст и актуальность. В современной цифровой среде ИИ-ассистенты и рекомендательные системы все чаще выступают посредниками доступа к информации, коммуникации и культурным образцам, что делает актуальным их анализ как новых агентов социализации. **Цель.** Провести теоретико-методологический анализ ИИ-ассистентов и рекомендательных систем как посредников формирования когнитивных практик, коммуникативного опыта, ценностных ориентаций и идентичности. **Гипотеза.** Предполагается, что алгоритмические системы выступают не только техническими инструментами, но и специфическими медиаторами культурного опыта, влияющими на

интериоризацию норм, способы социального сравнения и самопрезентации личности. **Методы и материалы.** Исследование выполнено в логике теоретико-аналитического обзора. Используются концептуальный анализ, сравнительно-теоретический анализ, проблемно-тематическая систематизация литературы и интерпретативный синтез исследований в области психологии социализации, культурно-исторической психологии, взаимодействия человека с ИИ, цифровой этики и платформенных исследований. **Результаты.** Показано, что ИИ-ассистенты обладают квазисоциальным статусом и влияют на коммуникативные ожидания, доверие и когнитивные привычки пользователей, а рекомендательные системы участвуют в формировании картины социальной реальности, нормативных представлений и алгоритмически опосредованной идентичности. Обосновано понятие алгоритмической социализации. **Выводы.** ИИ должен рассматриваться как новая социализирующая инфраструктура и особое знаково-техническое средство, опосредующее развитие личности, формирование высших психических функций и усвоение норм в цифровой культуре.

Ключевые слова: социализация, искусственный интеллект, рекомендательные системы, голосовые помощники, идентичность, ценности, алгоритмическая социализация, подростки, цифровая среда, эпистемическая агентность

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Introduction

In psychology, socialization has traditionally been understood as the process through which individuals become integrated into systems of cultural norms, values, and modes of action. Within cultural-historical psychology, personality development is conceptualized as the appropriation of social experience and the formation of higher mental functions mediated by cultural sign systems and joint activity (Vygotsky, 1983; Cole, 2009; Wertsch, 1998). The family, educational institutions, peer groups, and the media have traditionally been regarded as the primary agents of socialization (Grusec, 2011), while changes in the social and technological environment have significantly transformed the conditions under which personality development takes place (Bronfenbrenner, 1979).

The digital environment is reshaping the structure of these mediational processes (Soldatova, 2018). Recommender algorithms, voice assistants, search engines, and generative AI systems increasingly organize access to information and cultural models, personalize users' information environments, and mediate social comparison, self-presentation, and the formation of value orientations.

Algorithmic systems are becoming integral components of a new socializing infrastructure (Soldatova, Voiskounsky, 2021). Unlike traditional cultural tools, they adapt to users' actions, rank information flows, and regulate content visibility. Algorithmic selection thus participates in the construction of social reality (Just, Latzer, 2017), with individuals' engagement with norms, knowledge, and social representations increasingly taking place through algorithmically organized interfaces (Issar, Aneesh, 2021; Gritsenko, Wood, 2022).

This issue is particularly important for children, adolescents, and young adults, for whom the digital en-

vironment constitutes a natural part of everyday communication and cognitive activity (Soldatova, Nestik, Rasskazova, 2020).

The scientific novelty of the present study lies in conceptualizing algorithmic socialization from a cultural-historical perspective as a distinctive form of mediated development in which algorithmic systems function as adaptive semiotic-technical mediators: they become incorporated into the individual's activity and recursively transform the conditions of subsequent activity. In contrast to the frameworks of distributed and extended cognition (Hutchins, 1995; Clark, 2008), a cultural-historical analysis raises the question of how the structure of activity, psychological regulation, and agency is transformed through sustained interaction with an algorithmically organized environment.

The aim of this article is to provide a theoretical and methodological analysis of AI assistants and recommender systems as new mediators of socialization involved in shaping users' cognitive practices, communicative strategies, value orientations, and identities. We propose that algorithmic systems function not merely as technical tools but as distinctive mediators of cultural experience that influence the internalization of norms, patterns of social comparison, and forms of self-presentation.

Materials and methods

The present study is theoretical and analytical in nature and aims to conceptualize algorithmic socialization as a distinctive form of AI-mediated influence on personality development, cognitive practices, and users' communicative experience.

The methodological framework comprised conceptual and comparative theoretical analysis, problem-

oriented thematic systematization of the literature, and interpretive synthesis. These approaches were used to refine the concepts of *algorithmic socialization*, *algorithmic authority*, *algorithmic identity*, and *epistemic agency*, as well as to compare the cultural-historical approach with research on algorithmic governance, platform environments, and human – AI interaction.

The analytical corpus included classical works in cultural-historical psychology and socialization theory (Vygotsky, 1983; Cole, 2009; Wertsch, 1998; Bronfenbrenner, 1979), alongside contemporary research on recommender systems, algorithmic governance, and human – AI interaction (Pariser, 2011; Just, Latzer, 2017; Issar, Aneesh, 2021; Gritsenko, Wood, 2022; Taeihagh, 2025; Acikgoz et al., 2023; Qin et al., 2025). Priority was given to empirical, conceptual, and critical-theoretical publications in peer-reviewed international and Russian academic journals.

Cultural-historical psychology served as the primary interpretive framework, allowing algorithmic systems to be conceptualized as new semiotic-technical tools and mediators of development. Given the methodological heterogeneity of the literature, AI is conceptualized here as a hybrid mediator: although it lacks human moral agency, it can respond to users, personalize interactions, structure access to knowledge, and redistribute visibility. This quasi-social status is consistent with research on social responses to computers and with recent evidence on trust in AI (Nass, Moon, 2000; Acikgoz et al., 2023; Qin et al., 2025; Taeihagh, 2025).

Results

AI as a new agent of socialization

In classical models of socialization, norms and patterns of behavior are acquired within systems of interpersonal and institutional relationships involving emotional reciprocity, social reinforcement, and moral responsibility (Grusec, 2011). The digital environment is transforming this architecture: AI systems are becoming embedded in everyday processes of cognition, communication, and decision-making, while not constituting fully fledged subjects of social interaction (Livingstone, 2009; Selwyn, 2019; Ershova, 2022; Miklyaeva, 2024).

Theoretical approaches interpret this transformation in different ways. From an instrumental perspective, algorithmic systems are viewed primarily as tools for organizing digital experience and extending users' capabilities, whereas research on algorithmic and platform governance emphasizes their capacity to regulate behavior through ranking, classification, visibility management, and predictive intervention (Zuboff, 2019; Issar, Aneesh, 2021; Gritsenko, Wood, 2022; Campbell-Verduyn et al., 2017). Both perspectives, however, focus predominantly on the functions of algorithmic systems and the mechanisms through which they exert influence, leaving open the question of how systematic

interaction with these systems transforms the processes of socialization and the development of the individual as an agent.

A cultural-historical perspective shifts the focus from external algorithmic influence to the mediation of activity and the internalization of social experience. Within this framework, AI is understood not merely as a tool or a mechanism of platform governance, but as a distinctive mediator of the individual's relationship with the cultural and social environment. Algorithmic socialization can therefore be defined as a process in which norms, knowledge, and social expectations are appropriated both through direct interaction with other people and institutions and through activity within an environment that is selectively and adaptively structured by algorithmic systems. In this sense, the algorithm simultaneously functions as a mediator of cultural experience and as an infrastructure that organizes the conditions under which this experience is appropriated.

AI as a mediator of activity and the development of higher mental functions

From the perspective of cultural-historical psychology, the development of higher mental functions is understood as a process in which activity is mediated by cultural tools. L. S. Vygotsky demonstrated that voluntary forms of thinking, memory, and attention develop through the use of signs and symbolic means that initially exist in external social practice and are subsequently internalized by the individual (Vygotsky, 1983). The use of such tools transforms both the structure of activity and the organization of cognitive processes (Cole, 2009; Leontiev, 1975; Wertsch, 1998).

In contemporary digital environments, algorithmic systems can be conceptualized as a distinctive type of cultural tool embedded in the structure of everyday human activity (Kaptelinin, Nardi, 2007). Search engines, voice assistants, recommender algorithms, and generative models participate in the search, selection, interpretation, and structuring of information, thereby mediating the relationship between the individual and cultural knowledge (Rogoff, 2003). Importantly, algorithmic systems do not merely provide information; they also structure the space of possible actions available to the user by ranking available options, establishing hierarchies of relevance, and offering ready-made interpretations.

This is particularly significant for children and adolescents, for whom digital interfaces are becoming integral to educational, communicative, and cognitive activity (Engeström, 2015).

Research on distributed and extended cognition provides conceptual tools for describing the incorporation of technological systems into cognitive processes; however, a cultural-historical perspective substantially reframes the research question. In E. Hutchins's (1995) account of distributed cognition, the focus is on how cognitive operations are distributed across individuals, artifacts, and elements of the environment, whereas

A. Clark's (2008) framework of extended cognition allows external technological tools to be conceptualized as functional components of the cognitive system. From a cultural-historical perspective, however, the crucial issue is not only where cognitive processes take place or across which components they are distributed, but also how the incorporation of a new tool into activity transforms the development of the individual.

This distinction becomes particularly important in relation to algorithmic systems. A cultural tool does not merely increase the amount of cognitive resources available to an individual; mastering and using it restructures activity itself and transforms the modes of psychological regulation (Vygotsky, 1983; Leontiev, 1975; Cole, 2009; Wertsch, 1998). Algorithmic mediators, however, possess properties that most classical cultural tools did not: they can select and rank information, personalize responses, predict users' preferences, and recursively restructure the environment in which subsequent actions occur. This gives rise to bidirectional mediation: the individual acts through the algorithmic system, while the system itself, by adapting to the individual's previous actions, structures the field of subsequent orientation, choices, and actions.

The cultural-historical approach therefore makes it possible to conceptualize AI as an adaptive semiotic-technical tool capable of participating in the transformation of the conditions under which higher mental functions and agentic regulation develop. From this perspective, the central question concerns not so much the transfer of particular cognitive operations to an algorithm as the forms of volitional regulation, reflection, critical evaluation, and epistemic autonomy that develop under conditions of systematic algorithmic mediation of activity.

The quasi-social status of AI and the transformation of communicative and cognitive experience

The quasi-social status of AI represents a distinctive feature of the algorithmic mediation of social experience. Unlike classical parasocial interaction, which involves a one-sided relationship between an individual and a media figure (Horton, Wohl, 1956), an AI assistant responds to users' requests, adapts to the interaction, and simulates dialogical engagement, thereby acquiring characteristics of a quasi-social partner.

The possibility of perceiving AI in this way can be explained by mechanisms of social cognition and the specific organization of digital interaction. People tend to apply norms of interpersonal communication to computers and digital interfaces (Nass, Moon, 2000), while the presence of socially relevant cues facilitates the perception of AI as a social agent even when users are aware of its artificial nature (Frith, Frith, 2012). At the same time, personalization, predictability, and the absence of demands for complex emotional reciprocity may increase the appeal of such interactions (Turkle, 2011; Acikgoz et al., 2023; Qin et al., 2025). This mech-

anism is particularly significant in childhood: children often perceive voice-based interfaces as a distinctive kind of conversational partner displaying characteristics associated with living agents (Lovato, Piper, 2015; Druga et al., 2017).

The crucial issue, however, is not anthropomorphization of AI in itself, but rather the incorporation of a quasi-social algorithmic mediator into the structure of communicative and cognitive activity. Interaction with such a mediator is organized around rapid responsiveness, personalization, and the minimization of interpersonal risk, distinguishing it from human communication, which entails reciprocity, uncertainty, and the negotiation of perspectives. At the same time, ready access to digitally generated answers transforms the ways in which information is sought, verified, and critically evaluated (Kirkorian, 2018). Quasi-sociality thus extends the functions of the algorithmic mediator: AI not only provides access to information but also participates in shaping modes of communication and cognition, communicative expectations, and conceptions of socially meaningful interaction.

Recommender systems as mechanisms for shaping reality

Recommender systems intervene in the construction of users' representations of the world. The concept of the "filter bubble" describes a personalized version of informational reality (Pariser, 2011), while research on algorithmic transparency and epistemic welfare highlights the associated risks to the quality of the information environment (Diakopoulos, Koliska, 2017; Van den Bulck et al., 2025).

A key mechanism underlying this process is ordered visibility: algorithmic selection constructs reality under conditions of high personalization and low transparency (Just, Latzer, 2017). Recursive feedback reinforces users' previously expressed interests and preferences, which may come to be perceived as natural or inherently their own, even though they are sustained by platform mechanisms designed to capture and retain attention (Just, Latzer, 2017; Hobbs, 2020). Personalization is therefore inherently ambivalent: while it reduces information overload, it may simultaneously increase perceptual selectivity and contribute to epistemic narrowing (Pariser, 2011; Van den Bulck et al., 2025).

One consequence of managed visibility is the increased prominence of normatively and emotionally charged content. Algorithmic prioritization of engaging material may contribute to polarization (Tufekci, 2017), while interest in conspiratorial and radical topics may be accompanied by exposure to increasingly extreme content (Hosseinmardi et al., 2021). Digital hyperconnectivity has also been associated with anxiety, social vulnerability, and continuous social comparison (Twenge, 2017). Algorithmic selection may reproduce forms of digital harm as well as existing social and cultural hierarchies (Saurwein, Spencer-Smith, 2021; Bishop, 2019),

prompting users to adapt their self-presentation to platform requirements (Duffy, Meisner, 2022). At the same time, attention, emotional responses, and behavior become resources for economic optimization, embedding socialization processes within the logic of platform monetization (Zuboff, 2019).

What matters, however, is not merely the individual effects of algorithmic selection, but the transformation of the conditions under which social experience is appropriated. Individuals interact with an environment in which the accessibility, recurrence, and salience of cultural models are partly determined algorithmically. Recommender systems therefore function not only as channels for transmitting information but also as mediators of the individual's relationship with the cultural environment, structuring the field of orientation, social comparison, and choice.

The formation of norms, values, and algorithmic identity

Algorithmically organized visibility influences not only the accessibility of cultural models but also the ways in which users present themselves. In response to platform-specific formats of engagement and their assumptions about algorithmic preferences, users adapt their behavior even when the rules governing content selection remain opaque (Duffy, Meisner, 2022; Savolainen, 2022). The algorithm thereby becomes a kind of meta-audience in relation to which individuals regulate their own visibility and modes of social self-presentation.

Such adaptation is inherently ambivalent. The ability to manage algorithmic visibility can be understood as a new form of digital agency and strategic self-presentation (Literat, Kligler-Vilenchik, 2019; Yang et al., 2022; Low et al., 2025). At the same time, dependence on engagement metrics and algorithmically reinforced models of social recognition creates a risk of standardizing both self-presentation and identity (Duffy, Meisner, 2022; Savolainen, 2022; Zuboff, 2019). The development of critical algorithmic literacy, in turn, enables users to become aware of and critically reflect on these mechanisms of platform influence (Low et al., 2025; Ehret, 2024).

Adaptation to algorithmic systems may therefore become incorporated into the regulation of one's own activity. Individuals are not merely subjected to external algorithmic influence; they appropriate ways of acting within an algorithmically structured environment and reorganize their self-presentation accordingly. Algorithmic identity can thus be conceptualized as a process through which representations of the self are formed and regulated under conditions of continuous alignment between one's own actions and algorithmically organized regimes of visibility and social recognition.

AI as an epistemic and normative authority

Algorithmic mediation contributes to AI acquiring the characteristics of epistemic and normative authority, grounded not in moral responsibility or institution-

ally recognized expertise, but in the system's accessibility, personalization, and continuous integration into everyday activity. In this context, AI functions not only as a technological tool but also as a mechanism for governing information and social relations (Farrell, 2025), influencing what users perceive as relevant and worthy of trust.

Under these conditions, epistemic agency — the capacity of individuals to take an active stance toward knowledge and to independently evaluate, use, and transform it — becomes particularly important (Nieminen, Ketonen, 2024). Generative AI functions both as a source of information and as a mediator of its retrieval, interpretation, and construction. Preserving epistemic agency therefore requires individuals to retain control over the formulation of cognitive tasks and the evaluation of the quality of the knowledge they obtain (Woodruff, Hewitt, 2026). Delegating these operations to AI may shift epistemic initiative from the individual to the algorithmic system.

The opacity of algorithmic mediation is particularly significant in this regard: access to information about how a system operates does not in itself ensure either understanding or control (Ananny, Crawford, 2018), while the problem of algorithmic accountability extends beyond technical transparency and is embedded in the broader conditions of platform governance (Kim, Moon, 2021).

Interaction with a partially opaque mediator shapes the ways in which individuals orient themselves toward the system, assess its reliability, and verify the information it provides; these practices may, in turn, become incorporated into the regulation of cognitive activity. In this sense, algorithmic socialization concerns not only the content of knowledge but also the individual's relationship to knowledge: how it is sought, evaluated, and verified, and how sources are judged to be trustworthy. This gives rise to a central contradiction: while expanding access to cultural knowledge and reducing operational cognitive load, AI may simultaneously restrict the space available for independent inquiry and reflective control. Preserving epistemic agency therefore becomes one of the key conditions for agentic regulation of algorithmically mediated activity.

Conclusion

The analysis presented in this article allows algorithmic socialization to be conceptualized as a distinctive form of culturally mediated development that emerges through the systematic incorporation of AI assistants and recommender systems into cognitive, communicative, and social activity. Within the cultural-historical paradigm, cultural tools do not merely enable the performance of particular operations; once incorporated into activity, they transform its structure and the modes of psychological regulation (Vygotsky, 1983; Leontiev, 1975; Cole, 2009; Wertsch, 1998). The distinctive feature of algorithmic systems is that they

not only mediate access to cultural experience but also selectively organize that experience through mechanisms of ranking, personalization, and visibility management (Just, Latzer, 2017; Issar, Aneesh, 2021; Gritsenko, Wood, 2022).

The cultural-historical perspective complements theories of distributed and extended cognition by introducing a fundamentally different, genetic-developmental perspective. Whereas these approaches describe the distribution of cognitive processes across individuals, artifacts, and the environment, as well as the functional incorporation of external tools into the cognitive system (Hutchins, 1995; Clark, 2008), cultural-historical analysis asks how the systematic use of a new tool transforms the activity and development of the individual. In this sense, AI can be conceptualized as an adaptive semiotic-technical mediator characterized by bidirectional mediation: the individual acts through the algorithm, while the algorithm, adapting to the individual's previous actions, restructures the conditions of subsequent activity.

This conceptualization provides a more precise account of the psychological mechanism underlying algorithmic socialization. Individuals appropriate not only algorithmically selected content but also the modes of orientation, information seeking and evaluation, self-presentation, and social comparison that develop within this environment. The recursive nature of algorithmic mediation creates a situation in which users' actions become the basis for subsequent personalization, while the environment organized on the basis of these actions, in turn, establishes the conditions for new actions. Psychological analysis should therefore address not only the content of digital experience but also the transformation of the ways in which activity is regulated through the appropriation of that experience.

The effects identified in the literature point to a central contradiction inherent in algorithmic socialization. While expanding access to cultural and informational resources and redistributing cognitive load, algorithmic systems may simultaneously narrow the space available for independent orientation, critical evaluation, and reflective control. Under these conditions, epistemic

agency — the capacity of individuals to take an active stance toward knowledge and independently evaluate, use, and transform it — becomes particularly important (Niemenen, Ketonen, 2024). In interactions with generative AI, preserving such agency requires individuals to retain control over the formulation of cognitive tasks and the evaluation of the quality of the knowledge they obtain (Woodruff, Hewitt, 2026).

Thus, the distinctive explanatory value of cultural-historical psychology lies in its capacity to move beyond the question of how algorithms influence information and behavior toward a more fundamental question: what kind of individual as an agent is formed through systematically algorithmically mediated activity? A promising direction for future research is therefore to examine not only the immediate effects of AI use but also the forms of volitional regulation, reflection, critical thinking, and epistemic agency that develop through sustained interaction with adaptive algorithmic mediators.

The practical significance of this approach lies in the need to develop critical algorithmic literacy, which involves understanding the mediating role of algorithms, critically reflecting on the grounds underlying the solutions they provide, and maintaining autonomy in the evaluation of information (Low et al., 2023; Ehret, 2024). As algorithmic mediation expands, one of the key tasks of socialization is not to restrict the use of AI as such, but to develop individuals' capacity to incorporate it consciously into their own activity while retaining control over the grounds of their cognitive and social choices.

The limitations of the present study are related to its theoretical nature and the absence of original empirical data. In addition, the interdisciplinary body of literature analyzed here includes studies that differ in their methodological foundations and degree of empirical validation, which calls for caution when interpreting conclusions concerning the psychological mechanisms of algorithmic socialization. A further limitation is the highly dynamic nature of the digital environment and the rapid evolution of generative AI and platform practices, which outpace the development of a stable research tradition.

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Conflict of interest

The authors declare no conflict of interest.

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Ethics statement

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Научная статья | Original paper

Verbal-logical thinking and reading skills: A cross-lag analysis of mutual influence at the stage “kindergarten—primary school”

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Abstract

Context and relevance. The relevance of a longitudinal analysis of cause-and-effect relationships between verbal-logical thinking and the acquisition of reading skills stems from the need to address a fundamental problem in psychology—the relationship between mental development and learning. In practical psychology, this research is associated with the search for early individual psychological markers of potential learning difficulties. The processes of mental development and learning to read are closely interrelated throughout general education, but the direction and strength of these causal relationships may change during the transition from preschool to the initial stage of general education. **Objective.** This study examines the interplay between verbal-logical thinking and reading skills during the transition from kindergarten to the first grade of primary school. **Methods and materials.** A total of 260 children (50,1% female) participated in the study at two time points: during their preschool preparatory groups ($M_{age} = 6,82$, $SD = 0,3$) and one year later, following the completion of their first year of primary education ($M_{age} = 7,83$, $SD = 0,3$). Verbal-logical thinking was assessed using a mental development test measuring abstraction, classification and generalization, and analogical reasoning. Reading proficiency was evaluated according to reading method, ranging from non-reading to reading in whole words. Data were analyzed using cross-lagged panel structural equation modeling. **Results.** The analysis of cross-lagged relationships revealed a bidirectional nature of the relationship between verbal-logical thinking and reading proficiency during the transition from preschool to primary school. The most pronounced direct proportional effect was observed in the direction where the level of reading proficiency achieved by the end of the preschool period influences the subsequent development of cognitive operations—abstraction, classification and generalization, and analogical reasoning—at the onset of formal schooling. **Conclusions.** The specific nature of the causal relationship between the development of verbal-logical thinking and reading acquisition was identified and interpreted within the framework of cultural-historical psychology.

Keywords: verbal-logical thinking, mental operations, abstraction, classification, generalization, analogy, preschool and primary levels of general education, cross-lag analysis, cultural-historical psychology

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Словесно-логическое мышление и навык чтения: перекрестно-лонгитюдный анализ взаимовлияния на этапе «детский сад—школа»

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Резюме

Контекст и актуальность. Актуальность лонгитюдного анализа причинно-следственных связей между словесно-логическим мышлением и освоением навыка чтения обусловлена необходимостью решения фундаментальной проблемы психологии — соотношения умственного развития и обучения, а в сфере практической психологии сопряжена с научным поиском ранних индивидуально-психологических маркеров возможных сложностей в обучении. Процессы умственного развития и обучения чтению оказываются тесно взаимосвязанными на всем протяжении общего образования, но направление и сила причинно-следственных отношений могут меняться при переходе с дошкольного уровня на начальный уровень общего образования. **Цель.** В работе выполняется анализ взаимовлияния словесно-логического мышления и навыка чтения на этапе перехода ребенка из детского сада в первый класс школы. **Методы и материалы.** В исследовании 260 детей (50,1% девочек) приняли участие дважды: в подготовительных группах детских садов ($M_{\text{возраста}} = 6,82$; $SD = 0,3$) и спустя 1 год по завершении первого года обучения в школе ($M_{\text{возраста}} = 7,83$; $SD = 0,3$). Показатели словесно-логического мышления — операции абстрагирования, классификации и обобщения, аналогии — измерялись с помощью методики умственного развития. Степень сформированности навыка чтения соответствовала способу чтения — от неумения читать до чтения целыми словами. Применялся метод перекрестно-лонгитюдного структурного моделирования. **Результаты.** В ходе анализа перекрестно-лонгитюдных связей определен двунаправленный характер соотношения словесно-логического мышления и степени сформированности навыка чтения на этапе перехода ребенка из детского сада в школу. При этом наиболее выраженным прямо пропорциональным эффектом характеризуется направление, когда степень освоения навыка чтения при завершении дошкольного уровня образования влияет на дальнейшее развитие мыслительных операций абстрагирования, классификации и обобщения, аналогии в начале школьного обучения. **Выводы.** Определена специфика причинно-следственных отношений между развитием словесно-логического мышления и обучением чтению, которая интерпретируется в терминах культурно-исторической психологии.

Ключевые слова: словесно-логическое мышление, мыслительные операции, абстрагирование, классификация, обобщение, аналогия, дошкольный и начальный уровни общего образования, перекрестно-лонгитюдный анализ, культурно-историческая психология

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Introduction

Mental development and learning are interrelated throughout a person's life, which, according to socio-cultural theories of the mind, is due to the unity of innate properties and the social situation of development (Vygotsky, 1966). At the same time, the reported strength of this relationship varies widely — from close associations at the initial level of education to weak ones in the upper grades (Tikhomirova, Malykh, Malykh, 2020), indicating the uniqueness of the relationship for each specific age.

The tenet of cultural-historical psychology concerning the age-specific nature of the environment — particularly specially organized educational conditions — underscores the need to study the strength of the relationship between mental development and learning “...during the transition from age to age” (Vygotsky, 1966, p. 93). In this context, the most notable changes characterize the transition from preschool education to primary general education, which brings changes in the format of instruction, the educational organization, and so on. Indeed, significant changes in the educational environment can make psychological characteristics more salient and, accordingly, lead to changes not only in the strength of the relationship between individual indicators of mental development and academic skills but also in its direction.

At the first two levels of general education — preschool and primary — among the indicators of mental development that ensure the effective solving of educational tasks are the mental operations that form the core of verbal-logical thinking (Davydov, 1996; Zaporozhets, Zinchenko, Elkonin, 1964). The basic processes of registering, logically transforming, and applying incoming information — the mental operations of abstraction, classification and generalization, and analogy — on the one hand, act as the driving force behind the development of the child's cognitive sphere, and on the other hand, are influenced by educational events of varying intensity.

According to research, the ability to identify essential features of objects or phenomena (the operation of abstraction) is formed before other mental operations and serves as the basis for their development (Davydov, 1996). Abstraction is associated with the awareness of the true essence of objects and makes it possible to move beyond the boundaries of immediate perception, which is “within the capabilities” of children in the preparatory group of kindergarten, although sometimes “essential and non-essential fea-

tures are still not differentiated” (Davydov, 1996, p. 3). Accordingly, the development of the abstraction operation continues in the primary grades of school, and the temporal stability of the ability to identify essential features is presumably moderate at the “kindergarten—school” stage. The ability to distribute objects into groups and combine them based on common essential features (operations of classification and generalization) develops intensively in older preschool age, but research results indicate that they are formed only in an “elementary form” (Davydov, 1996, p. 3). Analogy — the ability to make inferences by analogy with proposed logical relationships between concepts — is associated with the transfer of experience to perform similar tasks and is formed later. Empirical research indicates the increased complexity of tasks on classification, generalization, and analogy upon completion of the preschool level of education (Tikhomirova, Malykh, 2025) and their intensive development at the beginning of schooling, which may manifest in extremely low temporal stability throughout the period covering the child's transition from kindergarten to school.

Among the learning processes, according to research and their meta-analysis, reading plays a primary role in the development of the basic mental processes of processing, logical transformation, and application of incoming information (Tikhomirova, 2026; Davydov, 1996; Ecalle et al., 2023; Holahan et al., 2018). Learning to read at the stage of transition from kindergarten to school is associated, on the one hand, with the absence of reading skills as a target indicator in the Federal State Educational Standard for preschool education, but, on the other hand, with large individual differences in reading ability among kindergarten graduates, related primarily to parental attitudes regarding the need to teach reading before entering school. Studies have reported moderate temporal stability of reading skills at the “kindergarten—first grade” stage, and further, until the completion of primary school, stability increases, reaching a plateau (Furnes et al., 2024).

Indeed, the development of mental operations occurs in the context of educational conditions, and the debate on the relationship between development and learning is both fundamental in nature and highly relevant to practice. Empirical analysis of this contested problem is best carried out using a longitudinal design, which opens up the possibility of determining the direction of the relationship and, accordingly, assessing cause-and-effect relationships between individual indicators over a specific time interval (e.g., Watkins, Styck, 2017). In such works,

it becomes possible to calculate the predictive effects of previously measured traits on the further formation of associated traits, even in the presence of bidirectional significant relationships characterizing mutual influence during development, and to draw conclusions about the predominant causal direction (Killingly et al., 2025).

Longitudinal studies involving students at different levels of education are complex to organize, which makes them scarce in research on the cause-and-effect relationships between indicators of verbal-logical thinking and the degree of reading skills acquisition. However, existing longitudinal studies provide empirical evidence in favor of three main solutions to the problem of the relationship between mental development and learning.

Thus, one group of studies reports the existence of a single significant direction of the relationship between mental development and learning – “learning influences development” – and the results are interpreted within the framework of cultural-historical psychology (Vygotsky, 1966; Zaporozhets, Zinchenko, Elkonin, 1964; Davydov, 1996). It has been shown, in particular, that children with more advanced reading skills (with fewer errors and a high degree of comprehension) subsequently cope better with tasks requiring understanding and logical transformation of verbal information (Ecalte et al., 2023; Sucena, Silva, Marques, 2023; Holahan et al., 2018). Furthermore, in a longitudinal study with five measurements from ages 7 to 16, previously developed reading skills are identified as one of the most important causes of the further development of not only verbal intelligence but also general mental abilities (Ritchie et al., 2015). It is argued that it is the educational environment that is the source and the driving force of mental development: the processes of development “follow” learning, which creates “zones of proximal development” (Vygotsky, 2013, p. 18).

Another group of studies presents an alternative perspective on the problem of the relationship between mental development and learning to read, providing evidence in favor of the direction “development – as the basis for learning success” (Quinn et al., 2015; Watkins, Styck, 2017). For example, a study with two measurements over the period from 8 to 11 years showed that intellectual development is a strong predictor of subsequent academic success in all school subjects, including reading (Watkins, Styck, 2017). The authors conclude that this causal direction is highly stable throughout schooling; however, the need to account for the socio-economic conditions of the child's development at an early age is noted (Quinn et al., 2015; Reynolds, Turek, 2012).

The third solution to the problem of the relationship between development and learning is offered by a group of researchers, reporting bidirectional relationships between verbal-logical thinking and reading (Killingly et al., 2025; Yan et al., 2021; Ferrer et al., 2007). Longitudinal data analysis in these works revealed a bidirectional nature of the relationship, but with the predominance of one direction or another in certain time periods. For example, a longitudinal study with five measurements covering the age period from 6 to 10 years reports bidirectional positive associations between verbal abilities and reading acquisition (Killingly et al., 2025). However, the direction “from early reading to further development of the ability to operate with verbal material” was characterized by a more pronounced predictive effect (Killingly et al., 2025). Moreover, in certain time intervals (in particular, from 6 to 7 years and from 9 to 10 years), the influence of reading on the successful performance of verbal tasks later turns out to be the only significant relationship (Killingly et al., 2025), indicating the age-specific nature of bidirectional models of the development – learning relationship.

These conflicting findings may reflect the diversity of linguistic, cultural, and age contexts of the participants in longitudinal projects, the vast majority of which were conducted in Western Europe and the USA. Longitudinal studies involving Russian children, aimed at studying the relationship between mental development and academic outcomes – with two or more measurements of the same respondents – are few. Moreover, the number of longitudinal studies spanning the transition from preschool to primary education is vanishingly small due to their particular organizational complexity: children from one kindergarten enter different schools, often changing their area of residence. However, it is precisely at the “kindergarten–school” stage that the results of longitudinal projects have especially high practical relevance, associated with the scientific search for “preschool” psychological markers of difficulties in mastering academic skills that may arise during subsequent schooling.

The present study aims to analyze the mutual influence between verbal-logical thinking and reading skills at the stage of a child's transition from the preparatory group of kindergarten to the first grade of school. Achieving this aim will yield empirical data needed to address a fundamental and socially pressing problem in psychology – the problem of the relationship between mental development and learning.

The study aims to determine the cause-and-effect relationships between development and learning, specifi-

cally the links between the mental operations of abstraction, classification and generalization, and analogy with the degree of reading skills acquisition over the time period including the transition from preschool to primary general education. Which direction of the relationship is more pronounced: does the level of development of a child's verbal-logical thinking in older preschool age influence the formation of their reading skills by the end of the first year of schooling, or, conversely, does the acquisition of reading skills in older preschool age stimulate the further development of verbal-logical thinking? In addition, the temporal stability of all analyzed indicators will be determined and, accordingly, the resulting tendency towards variability under conditions of instruction, upbringing, and development at the preschool and primary levels will be described.

These objectives can only be achieved in a longitudinal study where the same indicators of development (verbal-logical thinking) and learning (reading skills) of each child are measured twice — in the preparatory groups of kindergartens and 1 year later, upon completion of the first grade.

Materials and methods

Participants

Data from 260 children were analyzed, of which 50,1% were girls, who completed, on two occasions one year apart, tasks measuring verbal-logical thinking and reading skills. All children attended preparatory groups of various kindergartens in the urban district but were enrolled in one school upon transition to primary general education. At measurement 1 (preparatory groups of 11 kindergartens), participants' mean age was 6,82 (SD = 0,3), at measurement 2 (first grades of one school) — 7,83 (SD = 0,3).

Procedure

The tasks were administered individually in April–May by the researcher together with the educational psychologist working at the kindergarten at measurement 1 or at the school at measurement 2, in strict accordance with the protocol. Written informed consent had been obtained beforehand from parents for their child's participation in the longitudinal study.

Instruments

“Verbal-logical thinking”. Each participant completed computer-based tests measuring verbal-logical thinking in a separate room in the kindergarten (measurement

1) or in the school computer lab (measurement 2). The tasks were built on the material of the mental development test for children of preschool and primary school age (see: Tikhomirova, Malykh, 2025) and were scored as the number of correct answers. Instructions for the tasks were read aloud by the researcher regardless of the child's ability to read.

“Abstraction”. These tasks require the ability to identify only the essential features of objects. The participant is given the instruction to select the single word from several proposed options that correctly completes the sentence. For example, the beginning of the sentence “A tree always has...” is read and words are listed to choose one solution: “flowers, root, fruits, leaves, shadow”.

“Classification and Generalization”. These tasks assess the ability to sort objects into groups based on given criteria and combine them based on common features. The participant is instructed to combine four words into a group, name it, and then identify one extra word that does not fit the others. For example, a series of words is read: “river, lake, sea, bridge, swamp” — and then the participant is asked to complete the task.

“Analogy”. These tasks engage the ability to make inferences by analogy with proposed logical relationships between concepts. For example, the researcher reads the task: “The words ‘flower — vase’ are related to each other in the same way as the words in the second pair. Choose the appropriate word for the word in the second pair: ‘bird’ is related to what?”. Then a series of words is read to choose from: “beak, seagull, nest, egg, feathers”.

Reading skills. At measurements 1 and 2, each participant was asked to read excerpts from V.P. Kataev's work “The Seven-Color Flower” (at measurement 1 if they could read in any way). The researcher recorded each respondent's reading method — whether they can read by letters, by syllables, by syllables and words, or in whole words.

Statistical data analysis algorithm

At stage 1, indicators of verbal-logical thinking development, measured by the tests “Abstraction”, “Classification and Generalization”, “Analogy”, were standardized within each measurement (Z-transformation).

At stage 2, based on the reading method data, an index of reading skills was constructed: at measurement 1 — from absolute inability to read to reading whole words, and at measurement 2 — from reading by letters to the ability to read whole words. Reading skills acquisition indicators at each measurement were transformed into ordered factors with five levels, ensuring correct interpretation in models with ordinal dependent variables.

At stage 3, data analysis of verbal-logical thinking and reading skills from measurements 1 and 2 was performed using a cross-lagged panel model in the R environment (“lavaan”). Model fit was assessed using DWLS estimation, which is suitable for ordinal dependent variables, and the interpretation of model parameters and R^2 was performed using standardized coefficients. Three types of relationships between indicators of verbal-logical thinking and reading at two measurements with a one-year interval were calculated:

— Cross-lagged relationships in two directions, showing how much the variation in the prior measurement of one indicator (e.g., the degree of reading skills acquisition in the kindergarten preparatory group) explains the variation in the subsequent measurement of another indicator (the level of development of the verbal-logical thinking indicator in the first year of schooling).

— Within-time associations, assessing the total variation of indicators within each of the two measurements.

— Autoregressive relationships, reflecting the stability of the indicator over time and, accordingly, the tendency to change as the educational level shifts.

Results

Table 1 presents the mean values and standard deviations of verbal-logical thinking indicators measured in the kindergarten preparatory group and in the first year of schooling.

Table 1 shows the mean number of correct answers in the tasks “Abstraction”, “Classification and Generalization”, and “Analogy” with a maximum possible range from 0 to 10.

According to Table 1, an annual increase in mean values is observed for all analyzed indicators. Notably, the increase in the number of correct answers is slightly larger in the task on generating inferences by analogy — 27.1% compared to tasks on abstraction, classification, and generalization (23.3% and 23.5%, respectively).

Table 2 shows the percentage ratio of study participants by the degree of reading skills formation at two measurements — in the kindergarten preparatory groups and by the end of the first grade.

According to Table 2, despite the absence of target indicators in the form of developed reading skills in the Federal State Educational Standard for preschool education, only 5.9% of the study participants in the kindergarten preparatory group cannot read. At the same time, almost 47.8% of children read by syllables, 26.6% read by syllables and words, and 12.3% of the study participants confidently read whole words already at the preschool level of general education. This situation is due to parental attitudes regarding the need to teach reading before entering school and, accordingly, the opportunities for additional education where children are purposefully taught to read.

By the end of the first year of schooling, the largest percentage groups are study participants reading by syllables and words — 48.8% and their peers reading whole words — 37.3%. At the same time, there are still first-graders reading by syllables (12.4%) and by letters (1.5%), indicating large individual differences among children under conditions of relative uniformity when learning to read in primary school.

Cross-lagged structural equation modeling

According to the results of the cross-lagged analysis, the theoretical cross-lagged model demon-

Table 1

Descriptive statistics of verbal-logical thinking indicators at preparatory groups of kindergarten and grades 1

Verbal-logical thinking indicator	Preparatory groups of kindergarten	Grades 1
Abstraction	6,0 (2,0)	7,4 (1,5)
Classification and Generalization	5,1 (2,2)	6,3 (1,7)
Analogy	4,8 (2,4)	6,1 (2,4)

Table 2

Percentage of children by level of reading skill at preparatory groups of kindergarten and grades 1

Method of reading	Preparatory groups of kindergarten	Grades 1
They can't read at all	5,9%	0%
By letters	7,4%	1,5%
By syllables	47,8%	12,4%
By syllables and words	26,6%	48,8%
By whole words	12,3%	37,3%

strated a high fit to the empirical data ($\chi^2(6) = 2,74$, $p = 0,841$; CFI = 1,000; TLI = 1,07; RMSEA = 0,000; SRMR = 0,023). The model made it possible to determine the nature of the relationship between verbal-logical thinking and reading skills over the time period including the change in the level of general education. The figure shows a graphical representation of the cross-lagged model of the relationship between individual mental operations – abstraction (“ABSTR”), classification and generalization (“CL&GEN”), analogy (“ANALOG”) – and reading skills (“READING”) at the stage of transition from kindergarten (“KIND”) to school (“GRADE 1”). The model, along with cross-lagged relationships determining the direction of influence of verbal-logical thinking and reading skills in the process of development and learning, also includes synchronous correlation relationships at each educational level and autoregressive paths showing the temporal stability of all analyzed indicators. Solid lines indicate statistically significant relationships with standardized coefficients ($p < 0,05$), dotted lines indicate non-significant relationships.

The analysis of cross-lagged regression relationships in the direction of the influence of the child's verbal-logical thinking in kindergarten on the degree of reading skills acquisition by the end of the first year of schooling showed a weak positive contribution from only the mental operation of abstraction ($\beta = 0,21$). Ac-

cording to the structural modeling data, the contributions of the level of development of the operations of analogy, classification, and generalization, measured at the kindergarten stage, were not significant for the degree of reading skills acquisition by the end of the first year of schooling ($p > 0,05$).

Conversely, the effects of reading skills formed by the end of preschool on the development of the child's verbal-logical thinking in the first grade are more numerous and more pronounced. Thus, the degree of reading skills acquisition at the preparatory group stage makes a significant positive contribution to the development of each indicator of verbal-logical thinking in the first school year. At the same time, the contribution of “preschool” reading skills to “school” verbal-logical thinking varies depending on the type of mental operation – from a minimum for abstraction ($\beta = 0,17$) to a maximum for analogy ($\beta = 0,29$) with an intermediate value for classification and generalization ($\beta = 0,24$). Such differences in the dependence of individual mental operations on previously developed reading skills may be associated with the specificity of their temporal stability and, accordingly, the severity of the tendency towards their own variability under the influence of educational, upbringing, and developmental conditions.

Indeed, the analysis of autoregressive coefficients showed that among mental operations, only abstraction demonstrates significant, albeit weak, temporal stability,

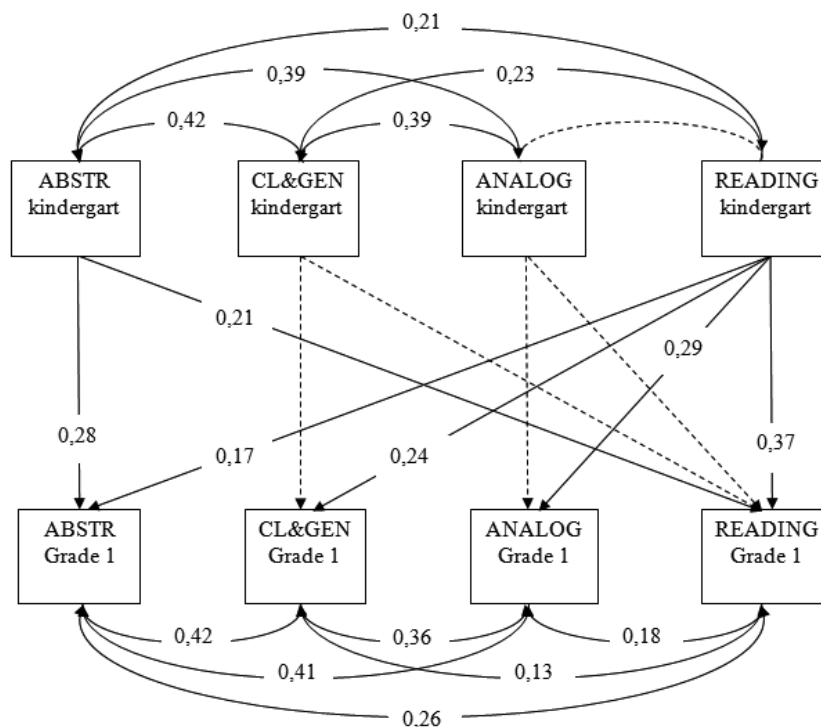


Fig. Cross-lag model of the relationship between mental operations and reading skills during the transition from kindergarten to school

reflecting a pronounced tendency towards variability of mean values during the transition from kindergarten to school ($\beta = 0,28$). At the same time, autoregressions for analogy, classification, and generalization did not reach statistical significance ($p > 0,05$), confirming the extremely high intensity of their formation and development during the school period. For reading skills, higher temporal stability was shown ($\beta = 0,37$), which may indicate the importance of already developed reading skills at the preschool level of education for subsequent progress in reading.

Within-time correlations between verbal-logical thinking and reading skills are most evident at the end of the first year of schooling ($0,13 < r < 0,26$) compared to the kindergarten preparatory groups, where there is an absence of significant relationships, in particular between analogy and reading ($p > 0,05$). However, at both analyzed levels of general education, the relationships between individual indicators of verbal-logical thinking – the operations of abstraction, classification and generalization, and analogy – vary within the same range of values ($0,36 < r < 0,42$). These associations are moderately positive.

Discussion

Based on longitudinal data analysis with two measurements, the bidirectional nature of the relationship between verbal-logical thinking and the degree of reading skill acquisition at the stage of the child's transition from kindergarten to school was determined. On the one hand, the degree of reading acquisition upon completion of preschool education influences the development of verbal-logical thinking operations at the primary level, and, on the other hand, the “preschool” level of development of individual verbal-logical thinking operations stimulates the acquisition of reading skills in the first grade. These longitudinal data, obtained for the first time on a sample of Russian children, are fully consistent with studies of the relationship between verbal abilities and reading in children from China (Yan et al., 2021), Australia (Killingly et al., 2025), and the USA (Ferrer et al., 2007), confirming the theoretical idea of the mutual dependence of learning and development processes (Vygotsky, 1966). Indeed, the reciprocal relationship between verbal-logical thinking and reading skills does not imply an opposition between development and learning; rather, it demonstrates the distinctiveness of their dynamics and mutual influence at individual age stages.

However, with the reciprocal nature of the model, the results of the analysis of cause-and-effect relationships between individual mental operations that form the core of verbal-logical thinking and the degree of reading skill acquisition at the “kindergarten–school” stage confirmed their different strengths and directions. Thus, the most pronounced positive effect is found in the direction where the degree of reading skill acquisition developed upon completion of the preschool level of education stimulates the further development of verbal-logical thinking during schooling. According to cross-lagged relationships, the degree of reading acquisition at the preschool level makes a positive contribution to the development of all mental operations analyzed by the end of the first grade: abstraction, classification and generalization, and analogy. These longitudinal data can serve as empirical evidence for the most important thesis of cultural-historical psychology that the processes of mental development “follow” learning, which creates “zones of proximal development” (Vygotsky, 2013, p. 18). According to research, children who at the age of 6–7 years read the text faster, made fewer mistakes when reading, and already practiced reading whole words while monitoring comprehension, coped better with tasks requiring understanding and logical transformation of verbal information at later ages (Rachanioti, Alevriadou, Charitaki, 2025; Ecalte et al., 2023; Sucena, Silva, Marques, 2023; Holahan et al., 2018). Moreover, in a longitudinal study of monozygotic twin pairs, a higher degree of reading skill acquisition by one of the twins at age 7 proved to be the most important cause of later advantages on tests of not only verbal intelligence but also general intellectual abilities compared to the other twin from the pair (Ritchie et al., 2015).

At the same time, the second possible direction – the influence of individual verbal-logical thinking operations upon completion of kindergarten on the degree of reading skill acquisition in the first grade – is characterized by a single significant relationship, in which the “preschool” level of development of the abstraction operation makes a small contribution to the acquisition of reading skills at the beginning of schooling. According to research, the ability to identify essential features of objects or phenomena not only serves as the basis for the development of other mental operations (Davydov, 1996) but also determines individual differences in the success of reading skill acquisition during subsequent schooling (Quinn et al., 2015; Watkins, Styck, 2017). In particular, verbal intelligence test scores at age 9, based, among

other things, on performing tasks involving the identification of essential features of objects, were highly predictive of academic success in reading and, in particular, reading comprehension at ages 11 and 15 (Reynolds, Turek, 2012). A longitudinal study covering a longer period of schooling showed differences in the influence of individual indicators of verbal-logical thinking measured at early stages of learning on progress in reading acquisition during further schooling, which is associated with the heterogeneous development of mental operations in ontogenesis (Holahan et al., 2018).

During structural modeling, the temporal stability of all analyzed indicators was determined and, accordingly, the tendency towards variability under the conditions of education, upbringing, and development at the preschool and primary general education levels was described.

Among the indicators of verbal-logical thinking, the most unstable and therefore highly susceptible to the conditions of instruction, upbringing, and development during the transition from preschool to primary general education, are the mental operations of analogy, classification, and generalization. Thus, it is these mental operations that begin to form most actively under the influence of systematic schooling, while in older preschool age these mental processes are carried out without “going beyond” the limits of immediate perception and are possibly based only on an “elementary form” of concepts (Davydov, 1996, p. 2–3). Indeed, it is in tasks aimed at actualizing the abilities to distribute objects into groups based on given criteria and combine them based on common essential features, and to generate inferences in accordance with proposed logical relationships, that an intensive increase in mean values is observed during the first year of schooling. Conversely, the mental operation of abstraction has a significant, albeit weakly expressed, temporal stability and, accordingly, is characterized by a less pronounced tendency towards variability compared to the operations of analogy, classification, and generalization. According to research, the ability to abstract is the basis for the development of other mental operations, which means it is formed earlier in ontogenesis: already at the kindergarten stage, children on average can identify truly essential features of objects (Tikhomirova, 2026; Tikhomirova, Malykh, 2025). It should be noted that for almost all mental operations, more noticeable individual differences are observed during the preschool period compared to the primary level of general education, which indirectly confirms the effects of the influence of systematic education on development. At the

same time, for the operation of analogy, the range of variability remains stable, indicating greater individual differences and, according to the data, greater complexity of tasks on establishing logical relationships by the end of the first year of schooling.

The temporal stability of reading skills during the transition from kindergarten to school is moderate, confirming the importance of developed reading skills at the preparatory group stage for subsequent mastery of the skill and its stabilization. These data are consistent with the results of a five-year longitudinal study involving children from the USA and Sweden, indicating moderate stability of reading skills at the stage of transition from kindergarten to school with a further increase in their predictive power throughout primary education (Furnes et al., 2024). Indeed, at the kindergarten stage, there is no targeted reading instruction, yet it is this period that shows very large individual differences in the level of reading skill: from children who cannot read at all to children who confidently read whole words. Such individual differences in the absence of systematic reading instruction are due to parental attitudes regarding the need to be able to read before entering school (Tikhomirova, Malykh, 2025) and provide the uniqueness of bidirectional directed connections between the development of verbal-logical thinking and learning to read during the transition from kindergarten to school.

Conclusion

For the first time in a longitudinal study involving Russian children, the specificity of cause-and-effect relationships between verbal-logical thinking and reading skills during the child's transition from the kindergarten preparatory group to schooling was analyzed. The study identified the directions of cross-lagged relationships between individual mental operations forming the core of verbal-logical thinking and reading skills, and also assessed the temporal stability of indicators, indicating variability under the influence of educational, upbringing, and developmental conditions at the preschool and primary general education levels.

The results of cross-lagged structural equation modeling of data with two measurements allowed us to formulate the following main conclusions.

1. The relationship between verbal-logical thinking and reading over the period including the child's transition from kindergarten to school is character-

ized by bidirectionality, where, on the one hand, the degree of reading skill acquisition upon completion of the preschool level of education influences the further development of verbal-logical thinking at the primary level, and, on the other hand, individual indicators of verbal-logical thinking recorded in kindergarten stimulate the further acquisition of reading skills at school. However, the magnitude of each of these directions is different.

A. The most pronounced positive effect is found in the direction where the degree of reading acquisition on completion of preschool influences the development of verbal-logical thinking during the first school year. At the same time, the preschool level of reading acquisition has a positive predictive effect on the further development of all mental operations – abstraction, classification, generalization, and analogy.

B. Conversely, the opposite direction of the relationship between verbal-logical thinking and reading skills is characterized by a single significant relationship, where the preschool level of development of the mental operation of abstraction makes a small contribution to the acquisition of reading skills at the beginning of schooling.

2. The temporal stability of verbal-logical thinking at the “kindergarten–school” stage is extremely low, confirming a high degree of variability. Only the mental operation of abstraction – the ability to identify essential features of objects and phenomena – is characterized by significant but weak temporal stability, reflecting a pronounced tendency towards variability under the influence of educational conditions at the stage of the child's transition from kindergarten to school. The mental operations of analogy, classification, and generalization are extremely unstable at the “kindergarten–school” stage, indicating their own highest variability under conditions of schooling.

3. The temporal stability of reading skills during the transition from kindergarten to school is moderate, indicating that its change over time is relatively predictable and thus confirming the importance of correctly developed reading skills at the preparatory group stage for subsequent school success in reading.

Limitations. The authors are unable to make the dataset available due to the absence of a clause in the informed consent regarding the placement of “raw” data of the participants.

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Tatiana N. Tikhomirova — research idea; methodology; organization of data collection; interpretation of results; preparation and design of the manuscript.

Artem S. Malykh — database administration; application of statistical methods to data analysis.

The authors participated in the discussion of the results and approved the final text of the manuscript.

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The authors declare no conflict of interest.

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ЭМПИРИЧЕСКИЕ ИССЛЕДОВАНИЯ

Научная статья | Original paper

Shame-proneness and authenticity in emerging adulthood

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Abstract

Context and relevance. Authenticity is associated with well-being and is one of the conditions for the full functioning of the personality. However, maintaining authenticity may be associated with social risks. Shame, as a self-conscious emotion directed at the self and associated with the fear of social isolation, may restrict the expression of authenticity. The challenges of searching for the self and the consequences of shame-proneness are especially important in emerging adulthood, when decisions taken can critically affect life. **Objective.** To identify the presence and specific features of the relationship between personal authenticity and shame-proneness in emerging adulthood. **Hypothesis.** The level of personal authenticity is interconnected with shame experience, while the relationships of such experience with the various components of authenticity will be ambiguous. **Methods and materials.** The study involved 133 young people aged 18 to 29 ($M = 23,8$, $SD = 2,9$, 41,4% male). Authenticity, shame-proneness and the expression of traits in emerging adulthood were assessed using a battery of questionnaires (Moscow Authenticity Scale, Authenticity Scale, TOSCA-3, GASP, Inventory of the Dimensions of Emerging Adulthood). **Results.** Divergent relations of moderate strength were identified between shame-proneness and the components of authenticity, taking into account the traits of emerging adulthood. Shame-proneness is positively associated with self-alienation and accepting external influence, and is negatively related to authentic living. For authenticity measured with the Moscow Authenticity Scale, a negative relation was found between shame-proneness and the aspects of authenticity related to knowing and accepting oneself. **Conclusions.** The identified connections are weak or moderate in strength, which suggests that the consequences of a tendency to experience shame can be offset by an authentic person's ability to accept their imperfections and their high capacity to follow their purpose and accept life's circumstances.

Keywords: authenticity, shame, shame-proneness, emerging adulthood

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Склонность к переживанию стыда и уровень аутентичности в период становящейся взрослости

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Резюме

Контекст и актуальность. Аутентичность личности связана с благополучием и является одним из условий полноценного функционирования личности. Однако сохранение аутентичности может быть связано с социальными рисками. Стыд, как эмоция самоосознания, направленная на себя и связанная со страхом социальной изоляции, может ограничивать проявления аутентичности. Проблемы поиска себя и последствия склонности к переживанию стыда особенно важны в период становящейся взрослости, когда принятые решения могут критически влиять на жизнь. **Цель.** Выявить наличие и особенности взаимосвязи аутентичности личности и склонности к переживанию стыда в период становящейся взрослости. **Гипотеза.** Уровень аутентичности личности взаимосвязан с переживанием стыда, при этом взаимосвязи такого переживания с различными компонентами аутентичности будут неоднозначными. **Методы и материалы.** В исследовании приняли участие 133 молодых человека в возрасте от 18 до 29 лет ($M = 23,8$, $SD = 2,9$, 41,4% мужчин). Аутентичность, склонность к переживанию стыда и выраженность черт в период становящейся взрослости оценивались с помощью батареи опросников (Московская шкала аутентичности, Шкала аутентичности, TOSCA-3, GASP, Черты становящейся взрослости). **Результаты.** Выявлены разнонаправленные связи средней и умеренной силы между склонностью к переживанию стыда и компонентами аутентичности с учетом черт становящейся взрослости. Склонность к переживанию стыда положительно связана с самоотчуждением и принятием чужого влияния, связь с аутентичной жизнью является отрицательной. Для аутентичности, измеренной с помощью Московской шкалы аутентичности обнаружена отрицательная связь склонности к переживанию стыда и аспектов аутентичности, которые касаются знания и принятия себя. **Выводы.** Выявленные связи являются слабыми или умеренными по силе, что позволяет сделать вывод о том, что последствия склонности к переживанию стыда могут быть скомпенсированы способностью аутентичного человека принимать свои несовершенства, а также высокой способностью следовать за предназначением и принимать обстоятельства жизни.

Ключевые слова: аутентичность, склонность к переживанию стыда, становящаяся взрослость

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Introduction

Authenticity is associated with personal well-being, resilience in the face of crises and change, and the ability to maintain a sense of continuity in one's self-image despite changing social roles and the alienating influence of mass culture (Joseph, 2022; Nartova-Bochaver, 2023; Wood et al., 2008).

In a broad sense, authenticity refers to the ability to act in accordance with one's own feelings, values, and beliefs (Joseph, 2022). Two approaches to conceptualizing authenticity draw on traditional theories of personality: the person-centered approach (Wood et al., 2008) and the subject-oriented approach (Nartova-Bochaver, Bochaver, Korneev, 2024). These approaches complement each other by highlighting two aspects of authenticity: an orientation toward the self and an orientation toward the outside world (Vachkov, Peremolotova, 2025).

The person-centered approach is based on Carl Rogers' theory and views authenticity as "...a complex phenomenon that involves striving to identify and satisfy one's own needs while also being able to live harmoniously with others and respond to their needs" (Joseph, 2022, pp. 11–12). Authenticity involves maintaining consistency across three levels of functioning: primary experience (sensations, emotional states, thoughts, and unconscious attitudes), its symbolization (conscious attitudes, values, and beliefs), and the expression of experience through communication and behavior (Joseph, 2022; Wood et al., 2008). Authenticity is defined by three components that reflect the degree of consistency across these levels of functioning.

1. A discrepancy between experience and its symbolization gives rise to self-alienation, which involves a subjective sense of not knowing oneself (Joseph, 2022).

2. Consistency between behavior and symbolized experience is referred to in the model as authentic living – the ability to remain true to oneself even in situations where one's values and beliefs need to be defended (Joseph, 2022).

3. Accepting external influence refers to the relationship between the influence of internalized norms and mechanisms of criticism or approval (Wood et al., 2008) and one's willingness to take responsibility for one's actions (Joseph, 2022).

The subject-oriented approach places authenticity within the context of a person's existence and draws on S. Rubinstein's theory of personality. Authenticity is defined as "...a transcendent and adaptive personality trait that enables a person to remain true to their nature (individual qualities), the spatial and temporal circumstances of their life (environmental parameters of existence), and their calling and purpose (existential and transcendent challenges)" (Nartova-Bochaver et al., 2024, p. 24). This definition also implies sensitivity to deviations from one's purpose and life path (Nartova-Bochaver, 2023). Throughout life, authenticity develops in two directions. First, a person increasingly takes authorship of their own life. Second, authenticity involves maintaining a connection with the "True Self" in interactions with others while recognizing the role of other people in deepening self-understanding (Nartova-Bochaver et al., 2023).

Because authenticity involves both an orientation toward the self and an orientation toward the outside world, a person may give up authenticity in a challenging social situation when remaining true to oneself carries a risk of social rejection (Nartova-Bochaver, 2023; Hopwood et al., 2021; Sedikides, Schlegel, 2024). This suggests that authenticity may be related to self-conscious emotions, which reflect how people relate to themselves and are closely connected to the social context.

Shame, as a self-conscious emotion, is associated with the perception of the self and with fear of social isolation (Singh, Bhushan, 2025). J. Tangney defines shame as follows: "Shame is an emotion directed at the perception of one's self as a whole. A person feels insignificant, unworthy, and subject to the judgment of others" (Tangney, Dearing, 2002, p. 25).

The phenomenology of shame suggests that a person's attention becomes fully focused on the self; at such moments, the self feels exposed (Izard, 2006), which can be experienced as pain, including at the physiological level (Izard, 2006; Singh, Bhushan, 2025). Shame involves a complex set of affective experiences, including isolation, fear, helplessness, an acute sense of defeat, aggression, and sadness (Izard, 2006). Under normal conditions, shame serves an adaptive function and promotes prosocial behavior and identity development (Izard, 2006). However, intense shame can impair a person's capacity for development, reduce empathy,

and contribute to psychopathology, personality disorders, and difficulties in social interaction (Tangney, Dearing, 2022). They may also result in traumatic experiences (Bogolyubova, Kiseleva, 2015b). People may experience a loss of self-control and dissociation and may find it difficult to talk about their feelings (Bogolyubova, Kiseleva, 2015a; Kouri et al., 2023). Maladaptive shame can remain hidden behind unconscious defenses that reduce its intensity or mask it with other feelings (Brown, 2014). Research has identified several strategies for coping with shame: withdrawal, escape, aggression toward oneself, and aggression toward others (Tangney, Dearing, 2002).

The negative aspects of shame are closely related to the concept of shame-proneness, defined as a predisposition to respond with shame across different situations that has become a relatively stable personality trait and involves an affective response to events (Tangney, Dearing, 2002). Researchers have linked the development of shame-proneness to several factors, including parenting style within the family (Tangney, Dearing, 2002), past traumatic experiences (Bogolyubova, Kiseleva, 2015b; Flach, Cariola, 2025; Wang, 2025), and changes in life and social circumstances (Wang, 2025).

Qualitative studies have suggested a relationship between shame and authenticity. A high level of shame-proneness may inhibit the expression of authenticity. Conversely, an authentic person may be less likely to respond with maladaptive shame across a range of situations (Brown, 2014; Hughes, Blundell, 2024). Research on the relationship between authenticity and stress provides indirect support for this assumption (Nartova-Bochaver, 2023).

According to L.S. Vygotsky, personality development is inseparable from the social conditions in which a person lives (Vygotsky, 2004). The theoretical perspective of cultural-historical psychology therefore draws attention to the social conditions that shape these phenomena. In the person-centered conceptualization of authenticity, primary experience is expressed in accordance with social norms. The subject-oriented paradigm of authenticity emphasizes the role of social interactions in recognizing the "True Self". In her theory of shame resilience, B. Brown views shame as a biopsychosocial and cultural construct (Brown, 2006) that is linked to social conditions and shaped by culture. The connection between shame, authenticity, and the social environment suggests that their development depends on the social situation of development (Vygotsky, 2004). This makes it relevant to examine the relationship between shame-proneness and authenticity during a period of life when these phenomena are particularly significant.

Instability, identity exploration, a fluctuating sense of adulthood, gaining independence, the need to make new decisions that comes with it, and a wide range of

opportunities and possibilities for experimentation characterize emerging adulthood (Arnett, 2024). This period represents a specific social situation of development (Klementyeva, Ivanova, 2023) that spans the ages of 18 to 29. It falls between adolescence, when a person remains dependent on their parents, and adulthood, when a person takes responsibility for their life, makes decisions independently, and gains financial independence (Arnett, 2024). During this period, people make critically important decisions about their career, their partner for a family relationship, and where to live. Based on the characteristics of this period, J. Arnett (Arnett, 2024) identified five distinctive features of emerging adulthood: identity explorations, instability, feeling in-between, possibilities/optimism about one's future, and self-focus. Instability is associated with anxiety and lower subjective well-being (Klementyeva, 2023; Yerofeeva, 2025).

Emerging adults begin to distinguish between authentic and inauthentic states (Yerofeeva, 2025). During this period, authenticity is associated with creativity, a creative approach to life, a desire for autonomy, and reflection (Vachkov, Khramova, 2021; Yerofeeva, 2025), whereas inauthenticity is associated with fear of self-expression, loss of autonomy, and suppression of inner experience. The dimensions of emerging adulthood correlate with levels of authenticity, with more instability associated with lower levels of authenticity (Yerofeeva, 2025).

Emerging adulthood is a period marked by social pressure and high risks. During this time, people may face problems related to addictions, depressive and anxiety disorders, personality disorders, eating disorders, self-harm, and suicidal behavior (Zolotareva, Maltseva, Sarapultseva, 2025; Arnett, 2024). These problems have been associated with shame-proneness (Tangney, Dearing, 2002).

Taken together, these findings suggest that shame and authenticity are particularly important issues for emerging adults. The dimensions of emerging adulthood may affect levels of authenticity and shame-proneness.

The aim of the study is to examine the presence and characteristics of the relationship between personal authenticity and shame-proneness in emerging adulthood.

The study hypothesis is that the level of personal authenticity is related to the experience of shame, while the relationships between shame and different components of authenticity may differ.

Specific hypotheses

1. Shame-proneness is positively associated with self-alienation and accepting external influence in emerging adulthood.

2. Shame-proneness is negatively associated with authentic living in emerging adulthood.

3. Shame-proneness is negatively associated with the level of authenticity in emerging adulthood.

Materials and methods

The study included 133 young adults aged 18 to 29 years ($M = 23,8$, $SD = 2,9$), of whom 55 (41,4%) were men. Data were collected from Internet users using Yandex Forms.

Measures

1. Dimensions of Emerging Adulthood Questionnaire, Russian adaptation (Yerofeeva, 2023). The questionnaire is designed to assess the profile of dimensions of emerging adulthood.

2. Test of Self-Conscious Affect—3 (TOSCA-3), Russian adaptation (Makogon, Enikolopov, 2020). Scores were calculated for the Shame-proneness scale, which measures the tendency to experience shame.

3. Guilt and Shame Proneness Scale (GASP), Russian adaptation (Makogon, Enikolopov, 2014). The study used the shame-related scales Shame-NSE (Negative Self-Evaluation) and Shame-withdraw.

4. Moscow Authenticity Scale (MAS), which measures the level of authenticity within the subject-oriented approach to authenticity (Reznichenko, Irkhin, Nartova-Bochaver, 2021).

5. Authenticity Scale, Russian adaptation (Nartova-Bochaver, Reznichenko, Maltby, 2021). The measure assesses authenticity using three scales: Self-Alienation (SA), Accepting External Influence (AEI), and Authentic Living (AL).

Data analysis

Data were analyzed using Jamovi statistical software (version 2.6.44.0). Associations were examined using Spearman's rank correlation analysis and partial correlation analysis.

Results

Table 1 presents descriptive statistics stratified by gender.

To account for the contribution that the dimensions of emerging adulthood may make to levels of shame-proneness and personal authenticity, we calculated correlations between shame-proneness and the dimensions of emerging adulthood (Table 2).

The largest number of positive correlations was found between the Shame-proneness scale, the shame components, and Instability ($r = 0,349^{***}$, $r = 0,304^{***}$, $r = 0,234^{**}$). Shame-proneness and negative self-evaluation were correlated with Identity explorations ($r = 0,228^{**}$ and $0,261^{**}$, respectively) and Feeling in-between ($r = 0,267^{**}$ and $0,219^{**}$, respectively). Shame-withdraw was negatively correlated with Experiments ($r = -0,241^{**}$).

Table 1

Descriptive statistics				
Parameters	Males (N = 55)		Females (N = 78)	
	M	SD	M	SD
Dimensions of emerging adulthood				
Identity explorations	15,29	3,07	16,88	2,68
Experiments	12,82	2,65	13,49	2,16
Self-focus	8,75	2,30	9,23	1,93
Feeling in-between	9,00	2,53	10,23	1,98
Instability	11,71	3,22	12,63	2,30
TOSCA-3				
Shame-proneness	44,13	11,89	52,79	12,73
GASP				
Negative self-evaluation	4,46	1,46	5,33	1,25
Shame-withdraw	2,45	1,11	2,94	1,14
Moscow Authenticity Scale				
Authenticity	17,40	3,89	17,79	3,8
Authenticity Scale				
Accepting external influence	14,42	5,76	15,29	5,97
Self-alienation	14,6	5,46	15,09	6,01
Authentic living	11,75	4,66	10,96	4,42

Note: M — Mean; SD — Standard Deviation.

Table 2

Relationship between the indicators of dimensions of emerging adulthood and shame-proneness (N = 133)

Dimensions of emerging adulthood	Shame-proneness		
	Shame-proneness (TOSCA-3)	NSE	Shame-withdraw
Identity explorations	0,228**	0,261**	0,019
Experiments	–0,042	0,146	–0,241**
Self-focus	–0,083	–0,026	–0,127
Feeling in-between	0,267**	0,219*	0,134
Instability	0,349***	0,304***	0,234**

Note: NSE — Negative self-evaluation; «***» — p-value < 0,001; «**» — p-value < 0,01; «*» — p-value < 0,05.

Table 3 presents the correlation coefficients between authenticity and the dimensions of emerging adulthood.

Instability was correlated with all components of the Authenticity Scale and with the Authenticity score measured using the MAS. Positive correlations were

found between the Authenticity scale and the following dimensions of emerging adulthood: Experiments ($r = 0,292***$) and Self-focus ($r = 0,296***$).

Table 4 presents the partial correlation coefficients between shame-proneness and authenticity indicators, controlling for the dimensions of emerging adulthood.

Table 3

Relationship between the indicators of dimensions of emerging adulthood and authenticity (N = 133)

Dimensions of emerging adulthood	Authenticity			
	MAS	AEI	SA	AL
Идентичность / Identity explorations	0,096	0,118	–0,045	–0,073
Эксперименты / Experiments	0,292***	–0,054	–0,081	0,120
Ориентация на себя / Self-focus	0,296***	–0,191*	–0,122	0,112
Ощущение между подростковым возрастом и взрослым / Feeling in-between	0,128	0,116	0,115	–0,113
Нестабильность / Instability	–0,431***	0,405***	0,365***	–0,466***

Note: MAS — Moscow authenticity scale; AEI — Accepting external influence; SA — Self-Alienation; AL — Authentic living; «***» — p-value < 0,001, «*» — p-value < 0,05.

When controlling for Instability, moderate and near-moderate correlations were found between the components of the Authenticity Scale and the Shame-proneness scale: Self-alienation ($r = 0,318^{***}$), Authentic Living ($r = -0,278^{**}$), and Accepting External Influence ($r = 0,205^*$). Correlations were also found between Shame-withdraw and Self-alienation ($r = 0,304^{***}$) and Authentic Living ($r = -0,380^{***}$). When controlling for Instability, no significant association was found between Authenticity, as measured by the MAS, and the Shame-proneness scale.

Partial Spearman correlation coefficients were calculated separately for each item of the MAS, controlling for the dimensions of emerging adulthood; the results are presented in Table 5

A correlation was found between the Shame-proneness scale and those aspects of authenticity related to self-knowledge ($r = -0,249^{**}$) and self-acceptance ($r = -0,288^{**}$).

Discussion

The study revealed associations between the dimensions of emerging adulthood and shame-proneness.

Instability was associated with shame-proneness. The higher the levels of confusion, instability, and external pressure, the more likely a person was to respond with shame, negatively evaluate themselves, and seek to avoid difficult social situations. At the same time, when experiencing intense shame, a person may interpret what is happening through psychological defense mechanisms and transfer feelings characteristic of shame to the situation (Joseph, 2022; Izard, 2006).

The association between shame-proneness and Feeling in-between indicates that gaining independence and experiencing a fluctuating sense of adulthood are accompanied by feelings of inadequacy, fear of judgment, and concerns about being negatively regarded by others. This may be explained by the pressure of social expectations, which may elicit a tendency to respond with shame, as well as by the process of separation, which may be accompanied by feelings of shame (Korennai, Ralnikova, 2024).

The positive association between shame-proneness and Identity explorations suggests that, during emerging adulthood, a tendency to respond with shame and negatively evaluate oneself may prompt individuals to focus on themselves, their plans for the future, the search for meaning, and their own beliefs. Shame and negative

Relationship between the indicators of authenticity and shame-proneness with emerging adulthood dimensions controlled (N = 133)

Authenticity	Shame-proneness		
	Shame-proneness (TO-SCA-3)	NSE	Shame-withdraw
Moscow Authenticity Scale			
Authenticity	-0,150	0,003	-0,107
Authenticity Scale			
Accepting external influence	0,205*	0,069	0,214*
Self-alienation	0,318***	0,189*	0,304***
Authentic living	-0,278**	-0,156	-0,380***

Note: controlling for «Instability» dimension, for relation between MAS and Shame-withdraw controlling for dimensions «Instability» and «Experiments»; NSE — Negative self-evaluation; «***» — p-value < 0,001; «**» — p-value < 0,01; «*» — p-value < 0,05.

Relationship between the indicators of authenticity and shame-proneness with emerging adulthood dimensions controlled (N = 133)

Moscow Authenticity Scale	Shame-proneness		
	Shame-proneness (TOSCA-3)	NSE	Shame-withdraw
1. I am satisfied with the place and time in which I happened to live	-0,052	0,123	-0,027
2. I accept myself as I am by nature	-0,288**	-0,124	-0,178*
3. I know my calling and I follow it	-0,085	-0,170	0,113
4. Though I'm wrong — I'm living my own life	-0,161	-0,057	-0,098
5. I know and understand myself well	-0,249**	-0,208*	-0,157

Note: controlling for «Instability» dimension, for relation between MAS and Shame-withdraw controlling for dimensions «Instability» and «Experiments»; NSE — Negative self-evaluation; «***» — p-value < 0,01; «*» — p-value < 0,05.

self-evaluation may motivate individuals to reflect on the development of their identity (Izard, 2006).

Associations were found between the dimensions of emerging adulthood and authenticity. The largest number of associations was found between Instability and all indicators of authenticity. Feelings of confusion, stress, and external pressure are associated with a sense of alienation and an inability to express one's feelings, values, and beliefs, which is consistent with the model of authenticity as a state of flow characterized by emotional, cognitive, and motivational fluency (Sedikides, Schlegel, 2024). At the same time, these associations contradict the assumption that authenticity increases when individuals encounter uncertainty and stress; the nature of everyday stress characteristic of emerging adulthood may play a role (Nartova-Bochaver, 2023). In addition, in some cases, individuals may not have sufficient authenticity resources to cope with instability while remaining true to their "True Self", as emerging adulthood is a period of developing authenticity (Klementyeva, 2023).

A positive association was found between authenticity, as measured by the Moscow Authenticity Scale, and the dimensions Experiments and Self-focus. Authenticity during emerging adulthood is associated with opportunities, exploration, trying new things, freedom, and independence – in other words, with opportunities for self-realization. This is consistent with research linking authenticity during this period to autonomy, a creative approach to life, and creativity (Vachkov, Khramova, 2021; Yerofoeva, 2025).

The findings support the following specific hypotheses of the study: that shame-proneness is positively associated with Self-alienation and Accepting External Influence, and that shame-proneness is negatively associated with Authentic Living.

The positive association between shame-proneness and Self-alienation is consistent with understanding shame as a state of psychological distress in which dissociation separates a person from awareness of their primary experience (Bogolyubova, Kiseleva, 2015a; Hughes, 2024; Kouri et al., 2023). Self-alienation is associated with a tendency to withdraw; this association suggests an unconscious defensive response that may arise in response to shame experienced as a threat of isolation. In such cases, a person is unable to make sense of their state. At the same time, the inability to become aware of and express one's experience may itself contribute to isolation and intensify shame (Brown, 2014).

The negative association between shame-proneness and authentic living confirms that shame-proneness is accompanied by the suppression of one's internal experience, values, and beliefs in behavior. On the one hand, the association between authentic living and a tendency to withdraw indicates that a person who follows their feelings, attitudes, and values is less likely to resort to

a maladaptive avoidance strategy when experiencing shame. On the other hand, avoidance may be an unconscious response to intense shame that prevents a person from consciously acting in accordance with their values and attitudes (Brown, 2014).

Accepting External Influence was positively associated with shame-proneness, suggesting that external influence and feelings of inadequacy may lead a person to relinquish responsibility for their actions. The reverse may also be true: by accepting external influence, a person may distance themselves from their "True Self", thereby reinforcing a sense of its unworthiness, which may contribute to maladaptive shame (Brown, 2014).

No association was found between shame-proneness and the level of authenticity measured using the Moscow Authenticity Scale when Instability was controlled for. Given that the subject-oriented approach includes adaptive and transcendent aspects of authenticity (Nartova-Bochaver, 2023), a negative association was found between shame-proneness and self-knowledge and self-acceptance. Individuals who tend to respond with shame may have less self-understanding and may be less inclined to accept themselves as they are. At the same time, no association was found between shame-proneness and the other aspects of authenticity measured within the subject-oriented approach. This may be an artifact of the measures used, as the Moscow Authenticity Scale encompasses three dimensions of human existence, whereas the TOSCA-3 does not address the environmental and existential aspects of shame.

The associations identified in the study were moderate and weak; therefore, the relationship between shame and authenticity accounts for only part of the findings. This pattern is consistent with the complexity of psychological life, in which multiple emotions are present simultaneously and influence how a person perceives a situation and behaves (Izard, 2006). There are also factors that influence authenticity independently of shame (Sedikides, Schlegel, 2024). For example, the coexistence of high shame-proneness and high levels of personal authenticity may be explained by the fact that authenticity involves knowing and accepting one's negative qualities (Huang et al., 2025), awareness of which is characteristic of shame. Thus, shame may not alter one's representation of the "True Self". At the same time, shame-proneness is an emotional response whose negative effects may be mitigated through the use of adaptive strategies for coping with shame (Tangney, Dearing, 2002), which restore a person's capacity to be authentic.

Conclusion

The findings indicate an association between the level of personal authenticity and shame-proneness during emerging adulthood. An analysis of existing research

suggests that these phenomena are interrelated. On the one hand, a tendency to respond with shame across different situations is associated with insufficient self-understanding and reflection on one's current experience, reluctance to take responsibility, and a limited ability to stand up for one's feelings, beliefs, and values. On the other hand, the ability to remain committed to one's "True Self" is accompanied by greater sensitivity to the situation and allows a person to use a broader repertoire of strategies for coping with shame.

Among the components of shame-proneness, the tendency to withdraw showed the largest number of associations with components of authenticity. This strategy appears to be negatively associated with adaptive aspects of authenticity. Negative self-evaluation was negatively associated with following one's purpose, self-knowledge, and self-acceptance.

Associations were also found between shame-proneness and the dimensions of emerging adulthood. Instability was positively correlated with higher shame-proneness. Higher levels of Experiments were

associated with a lower tendency to withdraw. Identity explorations were associated with negative self-evaluation.

Research perspectives. The findings point to an association between the emotional sphere and authenticity. Longitudinal studies are needed to examine the dynamics of the relationship between shame and authenticity at different stages of emerging adulthood, using a broader range of measurement and data analysis methods. Further research should also examine gender, cultural, and socio-psychological differences; the contribution of the family context and digital environment; and the development and evaluation of psychological interventions aimed at reducing shame-proneness and supporting authenticity.

Limitations. The limitations of the study include the relatively small sample size and the methods used to assess shame-proneness, which do not allow for an assessment of the social and transcendent dimensions of shame.

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Russia in the representations of young Belarusians: The image of the country and attitudes towards integration cooperation

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Abstract

Context and relevance. The significance of preserving cooperation between Russia and Belarus dictates the need to study young people's attitudes towards this cooperation with the aim of identifying possible socio-psychological barriers to its development. **Objective.** Examining young Belarusian students' perceptions of Russia and their attitudes towards closer relations between the two countries. **Research question.** What are the preconditions of Belarusian youth's attitude towards integration cooperation between Russia and Belarus in the current context, and to which psychological factors might they be related? **Methods and materials.** In May 2025, an online survey was conducted among 106 Belarusian students ($M = 19,0$, $SD = 1,72$, 57% male) aged 18–25 using open-ended questions developed by the authors. **Results.** Most of the students interviewed had a positive image of Russia. While a positive attitude towards closer relations between the two countries prevails, awareness of the scope of cooperation between Belarus and Russia is low among many students. Most respondents view Russia as a non-threatening state for Belarus. However, one-tenth of the students think that a threat does exist. **Conclusions.** The results of the study show that there are favorable socio-psychological grounds for maintaining a positive attitude towards closer relations between Belarus and Russia among most young Belarusians. At the same time, most students are unaware of the extent of cooperation between the two countries, and many do not consider it to be significant. Some students express fears about Belarus potentially losing its sovereignty as a result of closer ties with Russia. All of these factors could hinder the development of effective cross-country engagement between Belarus and Russia.

Keywords: representations of Russia, attitudes towards cooperation between Belarus and Russia, Belarusian student youth, online survey

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Россия в представлениях молодых белорусов: образ страны и отношение к интеграционному сотрудничеству

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Резюме

Контекст и актуальность. Значимость сохранения сотрудничества между Россией и Беларусью диктует необходимость изучения отношения молодежи к данному сотрудничеству с целью определения возможных социально-психологических барьеров на пути его развития. **Цель.** Изучить представления молодых студентов-белорусов о России и особенности их отношения к сближению двух стран. **Исследовательский вопрос.** Какие существуют предпосылки отношения белорусской молодежи к интеграционному сотрудничеству России и Беларуси в текущем контексте и с какими психологическими факторами они могут быть связаны? **Методы и материалы.** В мае 2025 г. проведен онлайн-опрос среди 106 студентов-белорусов в возрасте от 18 до 25 лет ($M = 19,0$, $SD = 1,72$, 57% — юноши) с использованием разработанных авторами открытых вопросов. **Результаты.** Образ России в сознании большинства опрошенных студентов позитивен, преобладает положительное отношение к сближению двух стран, однако осведомленность о направлениях сотрудничества Беларуси и России у многих студентов низкая. Россия рассматривается большинством респондентов как государство, не несущее угрозу для Беларуси. Однако десятая часть студентов считают, что угроза присутствует. **Выводы.** Результаты свидетельствуют о благоприятных социально-психологических основаниях сохранения положительного отношения к сближению Беларуси и России у большинства молодых белорусов. Однако их слабая осведомленность о сотрудничестве двух стран и низкая личная значимость этого сотрудничества могут выступать барьерами на пути эффективного межстранового взаимодействия, как и опасения отдельных респондентов относительно возможной утраты Беларусью суверенитета в результате сближения с Россией.

Ключевые слова: представления о России, отношение к сотрудничеству Беларуси и России, белорусская студенческая молодежь, онлайн-опрос

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Introduction

Living in an era of rapid social change, digital transformation, rising interstate tensions, and armed conflict naturally expands the scope of research problems that cannot be solved without taking into account the characteristics of the current social and historical context. In these conditions, cultural-historical psychology provides a theoretical and methodological basis to achieve various relevant research goals (Maidansky et al., 2023). The scientific analysis of psychological factors and pros-

pects for effective interstate cooperation between Belarus and Russia is no exception.

In the context of cultural-historical psychology, the study of young Belarusians' perceptions of Russia focuses on analyzing the social environment as a source of these perceptions, the verbal and symbolic expression of these perceptions (as a result of significant mediation), and the personal meaning and experience of young people's attitudes towards cross-country cooperation and their acceptance or rejection of it as a result of internalizing these perceptions. Per-

ceptions of another country are a cumulative product of the internalization of cultural, social, and personal meanings. These views are shaped by education, the media, the information environment, public policy discourse, historical memory, intergenerational and family interactions, daily communication, personal experience, individual needs, and the subject's own activity. These representations form part of a person's information-meaning field — a special system defined by domestic scientists as the process and result of a person obtaining, processing, and applying information, whereby the information becomes representative of the subject (Kudryavtsev et al., 2025). Within the framework of cross-cultural psychology, the information-meaning field is considered as “a dynamic system that unites the physical and mental spaces of individuals and influences how they perceive and reorganize information through their attitudes and behaviors” (Kudryavtsev et al., 2025, p. 79). Representations of another country, as an element of the information field and a form of social reflection of personality, are formed through the individual's participation in various social activities and practices. These representations, in turn, influence the activities and interactions in which individuals engage. In this context, analyzing the representations of Belarusian students about Russia is important for assessing and forecasting the potential contributions of young people to the development and maintenance of international cooperation. Symbolically, the representations of modern, educated Belarusian youth (as an active strategically important part of society) can be seen as a component of the zone of proximal development of cooperation between Belarus and Russia.

The Day of Unification of the Peoples of Belarus and Russia is celebrated every year on 2 April. This holiday is a testament to the close bond that the two independent states and peoples have maintained for over thirty years since the collapse of the USSR. Belarus and Russia share a cultural and linguistic space, as well as a media and communication space. Scholars view this as a unique case compared to other post-Soviet republics. As D. Plotnikov notes, “Belarus presents a unique example in the post-Soviet space, where sovereignty was not followed by cultural separation, and the value of an independent state did not entail distancing itself from Russia” (Plotnikov, 2025, p. 50). Statistics on registered marriages between citizens of Belarus and Russia attest to the close ties between the two peoples: “in 2025, more than half of marriages registered with foreign nationals were contracted with citizens of the Russian Federation”. In total, 2,035 such marriages were registered in Belarus in 2025: 1,029 marriages be-

tween Belarusian women and Russian men, and 1006 marriages between Russian women and Belarusian men. Belarus is the only state in the post-Soviet space (apart from Russia) where the Russian language has official status. Russia and Belarus are part of the Union State and form the core of the Eurasian Economic Union (EAEU) — supra-state entities that presuppose the maintenance of a single economic space as well as the expansion and development of sociocultural integration (Karabchuk, Poplavskaya, 2019). Today, researchers consider Belarus to be Russia's most important strategic partner (Mezhevich, Shimov, 2024).

The maintenance and preservation of effective cooperation between the two countries is largely dependent on the positive attitudes of their peoples towards each other and towards the development of this cooperation. The most important basis and resource of international cooperation is young people, who embody a country's potential for development, particularly educated young people (Haurylik, 2025). Scholars define student youth as “a key resource and driver of future social transformations” (Barash, Tyurina, 2024, p. 431) and emphasize that, on the one hand, universities traditionally play an active role in international humanitarian cooperation and, on the other hand, they prepare staff to successfully implement this cooperation and form an appropriate communication space (Pevnaya, Minchenko, Gavrilik, 2025). However, the perceptions and attitudes of young people in both countries towards cooperation between Russia and Belarus may differ from those of older generations and the content of official state narratives (Karabchuk, Poplavskaya, 2019). This study therefore aims to examine the views of young Belarusian students on Russia and the specifics of their attitudes towards closer relations and cooperation between the two countries.

In Belarus, young people aged 14 to 31 make up 17.9% of the population. The modern student population in Belarus shares many similarities with that in Russia, bringing students from the two countries together (Snezhkova, Shalygina, 2020). These characteristics include elongated adulthood; prioritizing family values; striving for self-fulfillment and self-development; valuing education; focusing on maintaining health; being motivated to take socially meaningful action; focusing on factuality rather than interpretation when searching for sources of information; and having a low orientation towards television and a high orientation towards the Internet and social networks as the main sources of news and information (Andreev, Lashuk, 2019; Barash, Tyurina, 2024; Haurylik, 2025; Kruchek et al., 2023; Pevnaya et al., 2025; Selivanova, 2020; Snezhkova, 2024; et al.). On a daily basis, 99,1%

of Belarusian youth aged 14–30 use the Internet. Analysis of the results of the project “European Values Study” (2018 data) shows that young people in Belarus are highly sensitive to social injustice and violations of rights and freedoms. They also have a strong desire to play an active role in solving current problems and shaping their own future (Danilov, Rotman, 2021). This makes it important to study Belarusian youth's perception of Russia and their attitude towards integration and cooperation with Russia, in order to forecast and evaluate the potential of such cooperation. We would like to emphasize that socio-psychological approaches — which focus on psychological factors of effective intergroup interaction and take contextual conditions into account — are important for such studies.

There are scientific papers that reflect the attitude of Belarusian youth towards cooperation with Russia. However, these papers tend to analyze data collected more than five years ago. The intense local and global geopolitical, socioeconomic, and sociocultural changes of recent years necessitate intensifying such research and comparing results with past data. The current socio-historical context (prolonged armed conflict between Russia and Ukraine, sanctions restrictions, and an economic crisis) makes it necessary to monitor how Belarusian youth perceive Russia, in order to predict future prospects and identify potential barriers to cooperation between the two countries.

Previous studies have shown that Belarusian youth have a positive attitude towards Russia and Russians (Snezhkova, Shalygina, 2020; Snezhkova, 2024). However, an analysis of the heterostereotypes held by Belarusian youth reveals that they attribute negative traits to Russians, such as a “propensity for imperial consciousness and sometimes aggressive behavior” (Snezhkova, Shalygina, 2020, p. 351). Ambiguity in the perception of Russians has also been observed among a sample of young Belarusian schoolchildren (Brazhnik et al., 2016). Summarizing the data from two polls conducted by Belarusian and Russian scientists between 2018 and 2019 among Russian and Belarusian students, I.A. Snezhkova notes: “On the issue of creating a Union State, young people are cautious. Russians worry that the de facto accession of an entire state could worsen the country's economic situation. Belarusians cherish their country's independence and fear its absorption by a large neighbor. However, both groups welcome the increase in political, economic, and cultural interaction between the two countries' peoples” (Snezhkova, Shalygina, 2020, p. 351). The results of this study also show that, unlike the Russians, who generally view the Union State positively as a “gathering of lands”, “Belarusians see the poten-

tial danger of losing sovereignty and being drawn into all wars and conflicts that Russia is involved in” (ibid, p. 352). The research paper also states that, according to Belarusian respondents, “Russia is a strong military power with significant scientific and technological achievements, a rich history and culture, and great opportunities for young people. However, the country is not fully democratic or comfortable for ordinary people due to the insufficient level of economic development and unresolved social problems” (ibid, p. 353). The researchers emphasize that young Belarusian and Russian students envisage a shared future for their countries as a collaboration between two independent states (ibid).

Meanwhile, despite the high level of readiness among students from Russia and Belarus to cooperate in the context of the Union State's humanitarian diplomacy, scientists have noted limited participation by young people from both countries in cross-border projects and events. Students also have a weak understanding of “personal and national perspectives in the Russian-Belarusian sociocultural space” (Pevnaya, Minchenko, Gavrilik, 2025, p. 97). According to the annual Integration Barometer, researchers recorded the decline in the percentage of young people in Belarus who rated the EAEU positively between 2012 and 2017, as well as an increase in the number of young people who noted their indifference to this organization (Karabchuk, Poplavskaya, 2019). The same study also found that young Belarusians are more oriented toward Western countries than toward Eurasian countries in their future plans (Karabchuk, Poplavskaya, 2019). However, as the scholars emphasize, the question of the formation and stability of these orientations remains open.

Many scientists have discovered the mobility and multi-vector nature of Belarusians' foreign policy orientations (toward the East, the West, or both), as well as the duality of Belarusian national identity (Mezhevich, Shimov, 2024; Plotnikov, 2025; White, Biletskaya, McAllister, 2014; Shanshieva, 2014; Shimov, 2010). This is partly explained by the fact that “historically Belarus has been at the crossroads of various national-political projects, generating antagonistic and competing attempts at self-determination” (Mezhevich, Shimov, 2024, pp. 66–67). L. Shanshieva notes that “the life of Belarusians on the cultural frontier was constantly accompanied by periodic 'migration' from their culture to neighboring cultures and back” (Shanshieva, 2014, p. 8), creating conditions for cultural symbiosis and cultural heterogeneity. Some young Belarusians have ideas about “reformatting Belarus from an East Slavonic country to a Central European country at the crossroads of East and West” (Snezhkova, Shalygina, 2020, p. 352). Belaru-

sians also have a dual perception of Russia as both an ally and a guarantor of security, as well as a potential limiter of Belarus's sovereignty (ibid). At the same time, scientists emphasize the importance of abandoning the monopolization of one discourse in Belarusian society, and of “recognizing the multiplicity of cultural traditions as a natural attribute of Belarusian society, which is located at the intersection of geopolitical blocs, cultural-civilizational areas and religions” (Shimov, 2010, p. 83).

The identity of modern Belarusian youth is closely related to their planned emigration behavior (Selivanova, 2020; Murashchenkova, Gritsenko, Yefremenkova, 2023). At the same time, many Belarusians often regard Russia as an attractive country in which to live temporarily or permanently (Andreev, Lashuk, 2019; Selivanova, 2020; Muraksenkova, Grytsenko, Efremenkova, 2023). This can serve as an indicator of Belarusian youth's attitude towards cross-country cooperation. Additionally, significant markers of attitudes towards national convergence include representations of the country, the frequency and valence of contacts with representatives from a neighboring country, awareness of similar interactions among others, and the perceived threat from an outgroup (Pettigrew, Tropp, 2011; Geppert, Leonhart, Maes, 2025, Stephan, Ybarra, Morrison, 2009).

Based on the study's objectives and the results of the theoretical analysis, we developed a list of open questions to determine how young Belarusians perceive Russia and their attitude towards integration cooperation. The main research question of our study is: what are the preconditions of Belarusian youth's attitude towards integration cooperation between Russia and Belarus in the current context, and to which psychological factors might they be related?

Materials and methods

The sample included 106 Belarusian citizens (60 male and 46 female aged between 18 and 25, $M = 19,0$, $SD = 1,72$, predominantly Belarusian – 95%) from Vitebsk, Braslav, Polotsk, Novopolotsk, Gomel, Zhlobin, Mozyr, Petrikov, Mogilev and Bobruisk. The respondents were students at higher education institutions specialising in the humanities (9%), economics (39%) and technology (50%) (2% of respondents did not specify their field of study). We conducted the empirical study using qualitative methodology. The list of main open questions formulated for the study is presented in Appendix A. In addition to answering these questions, the respondents also provided information about their gender, age, nationality, educational background, and place of residence. Data were collected in May 2025

through an anonymous online survey using snowball sampling. All respondents signed an electronic informed consent form to participate in the study.

We processed the data using content analysis and thematic analysis, and engaged two independent psychologist experts. We read the entire dataset in detail. To analyze how respondents perceived Russia in the form of associations, we grouped the data by conceptual categories and subcategories using content analysis (see Appendix B, table.). To analyze the respondents' attitude towards integration and cooperation between the two countries, as well as the prerequisites of these attitudes, we used a structured tabular thematic analysis (Robinson, 2022). This method is suitable for brief texts, and combines inductive and deductive approaches in code and topic searches. It can be used for both quality analysis and for to obtain frequency data.

Results

The associations that Belarusian students expressed when answering the first question of the questionnaire have been grouped into thematic categories and subcategories (see Appendix B, Table). The Belarusian students' perceptions of Russia are multifaceted, but predominantly positive (see Appendix B, Table). Some responses included stereotypical cliches such as “bear-balalaika-matryoshka”. Other individual associations present in the responses included “corruption”, “propaganda”, and “tsarism”. However, the most common responses were those containing positive descriptions of Russia emphasizing its strength and power (see Appendix B, Table). Overall, the associations reflected Belarusians' views on the characteristics of Russians, their relations with Russians, the political and legal aspects of the manifestation of Russian statehood, Russian cities and infrastructure, and the country's economy and resource opportunities. There were also associations related to ethno-cultural and natural-climatic features, as well as the current socio-political context. Specific figures representing Russia named included V. Putin, A. Pushkin, and A. Usmanov.

In response to the second question of the survey (“Is there anything in Russia that interests you? If so, what?”), 83% of respondents identified appealing aspects of Russia. Their preferences were distributed according to the following topics: cities of Russia (Moscow, St. Petersburg, Smolensk, Yekaterinburg, Murmansk); nature; culture and history of the country; music; architecture; opportunities for professional self-fulfillment and employment; possibility of earning a living; places for rest and entertainment; similarities with Belarus; standard

of living; friendly people; mentality; multi-nationality of Russia. Some Belarusian students noted that they would like to live in Russia or travel there, while 17% of respondents answered “no” or “nothing interests” to the question about Russia’s interesting and attractive features.

When asked the next question, most respondents (72%) gave a different answer, indicating that there were no unattractive or discouraging aspects of Russia. However, 21% indicated an unattractive side of Russia. They responded as follows: the large size of country; crowds; high numbers of migrants; traffic jams; litter and mud in the streets; the state of military conflict; instability; sanctions; economic isolation; ineffective public administration; corruption; the mentality of the people; their anger and incivility; difficulties in small towns and villages; poverty; and high prices. Some respondents left the question unanswered (7% of respondents).

Just over half of the respondents (58%) have visited Russia for various reasons, such as tourism or visiting relatives and friends. Around 36% of respondents talked about young people they knew who had moved from Belarus to Russia. The reasons for moving were to access better education and/or more promising job opportunities and to be reunited with family. There were fewer examples of young people moving from Russia to Belarus, with only – 22% of respondents showing similar awareness. The goals of moving were cited as building a personal life, studying, working, or reuniting with family.

When asked to describe the current relationship between Belarus and Russia, the vast majority of respondents (90%) gave a positive evaluation: these included terms such as “good”, “friendship”, “brotherhood”, “friendly, strong”, “trustful”, “favorable” and others. However, some individual responses highlighted: (1) the complex nature of the relationship (“I would describe the relations between Belarus and Russia as allied but complex. On the one hand, there is close economic and political cooperation, but on the other hand, there are certain contradictions and dependencies”); (2) the greatest benefit for one of the countries (“mutually beneficial, more for Belarus”); (3) the involuntary nature of cooperation (“forced relations”); and other parameters – “tense”, “too close”, “acceptable”, “normal”, and “neutral”. Two respondents found it difficult to answer: “I don’t know, I don’t understand politics”, “no idea”.

About 57% of respondents are aware of an organization like the EAEU. However, most students are only aware of the existence of this union. Fewer than half of those who were aware of EAEU activities (22%) could provide any details, such as individual goals and/or participants. A significant proportion of Belarusian students surveyed (42%) had not heard of or knew anything

about the EAEU. One respondent confused the EAEU with the European Union.

The majority of respondents (63%) rated the level of integration and cooperation between Belarus and Russia as “positive” or “good”, 5% rated it as “normal”, and 16% as “neutral”. Three respondents (3%) provided detailed responses, emphasizing the importance of preserving Belarus’s sovereignty in cooperation processes and rejecting integration as a merger. One respondent wrote, “I support the integration processes that develop economic cooperation, cultural exchange, and good-neighbourly relations. However, I consider it important to preserve the sovereignty and independence of Belarus, as well as to take into account the interests of the Belarusian people”; “I regard integration processes between Belarus and Russia as positive if they contribute to economic growth, stability, and the preservation of sovereignty”; “Cooperation is fine, but integration would certainly be unnecessary”. Eight percent of respondents found it difficult to answer the question “How do you view the integration processes and cooperation between Belarus and Russia?” There were negative answers: “skeptical” (1%), “preferable integration with EU countries” (1%), “dual” (1%), and “negative” (2%).

In response to the question “Are there any areas of cooperation between Belarus and Russia that you find attractive and promising?” 25% of respondents found it difficult to answer, 7% of respondents left the question unanswered, and 27% of students said that there are no such areas. In other words, 59% of those surveyed do not understand the personal significance of cooperation between the two countries. Of those who indicated spheres of cooperation, 41% of students included areas such as education and science, culture, creativity, migration, space exploration, the economy, industry, technology, energy, freight transport, marketing, tourism, and agriculture. However, the single responses of respondents provided concrete examples of attractive forms of cooperation: “exchange of students, joint cultural events and preserving historical heritage”, “taking a paid summer internship at a Russian university”, and “obtaining citizenship”.

Eighty-seven per cent of respondents agreed that there are common grounds for integration between Belarus and Russia, with 85% of these providing concrete examples. The full range of these common grounds is reflected in the following concepts: “culture”, “mentality”, “tradition”, “language”, “people”, “some similarity in politics and arrangement in the country”, “common interests”, “political agreements”, “geographical location”, “history”, “common past”, “USSR”, “trade relations”, “creativity”, “friendly and single relationships”, “Slavic origin”, “Orthodox

faith”, “long-term economic and family ties”. Nine percent of respondents found this question difficult to answer, and 4% of respondents noted that there was no overall basis for integration.

Young Belarusians identified several potential barriers to integration: economic and bureaucratic difficulties, political disagreements, war, sanctions, opposition, intervention by other countries, incitement of ethnic strife, fear of losing sovereignty, differences in national identity, the perception of integration as an imposed process, conflicts and differences of opinion, disrespect for Belarusian traditions and language, a utilitarian view of Belarus' labor and natural resources, and differences in language, history, and values. These barriers were noted by 34% of respondents. The question proved difficult to answer for 31% of respondents, while 27% said there were no barriers, and 8% left the question unanswered.

The vast majority of students surveyed (82%) said that Russia does not pose a threat to their country. However, 10% of respondents answered yes when asked whether Russia poses a threat to Belarus. When asked to elaborate, they cited economic dependence on Russia, the possibility of being drawn into NATO conflicts, participation of Belarusians in military actions, the unequal nature of integration, and the subsequent loss of Belarus' national identity and independence. Eight percent of respondents found it difficult to answer.

Discussion

In this study, we analyzed the perceptions of Russia among young Belarusian students and their attitudes towards closer relations and cooperation between the two countries. We also addressed the main research question, identifying psychological factors that can contribute to positive and negative attitudes among Belarusian youth towards the integration and cooperation between Russia and Belarus in the current socio-historical context.

Our results are consistent with survey data from previous years, which revealed predominantly positive attitudes towards Russia and Russians among Belarusians, albeit with some negative aspects (Brazhnik et al., 2016; Snezhkova, Shalygina, 2020; Pevnaya, Minchenko, Gavriliuk, 2025; Snezhkova, 2024). Our study revealed the ambivalence of young Belarusians' foreign policy orientation, a phenomenon previously noted by other researchers (Karabchuk, Poplavskaya, 2019; Mezhevich, Shimov, 2024; Plotnikov, 2025; White, Biletskaya, McAllister, 2014; Shanshieva, 2014; Shimov, 2010). However, the results of the study show that, under current conditions, a preference for

cooperation with Russia dominates among young Belarusians. The study also shows that a positive attitude towards integration and cooperation between the two countries among Belarusian youth can be promoted by encouraging visits to Russia, personal experience of staying in the country, positive interaction with Russians, and sharing information about such experiences among acquaintances. Additionally, friendly ties with Russian citizens, positive perceptions of the relationship between the two countries and their peoples, and beliefs about the basis for integration and mutual understanding are also factors in fostering a positive attitude towards cooperation. A key indicator of the high probability of Belarusian youth maintaining a positive attitude towards integration with Russia is the low level of perceived threat from Russia. However, the study shows that one-tenth of the respondents sees Russia as a threat. Additionally, some participants reported a negative (5%) or neutral (16%) attitude towards cooperation between Belarus and Russia, while 8% were unable to answer the question. At the same time, more than one-third of the students surveyed reported possible barriers to integration between the two countries. These data suggest that factors contributing to negative attitudes towards intercountry cooperation exist. These factors may include negative views of Russia and Russians, fears among students about possible restrictions on Belarus's sovereignty, and concerns about Belarusians' national identity in the context of integration. There are also fears about Belarusians' potential involvement in the armed conflict between Russia and Ukraine. A lack of awareness of current and potential areas of cooperation between countries and international unions and associations may indirectly contribute to negative attitudes towards cooperation with Russia among young Belarusians. More than half of the respondents reported difficulties with their vision and definition of personal meaning and prospects for cooperation between Belarus and Russia, which may also be a barrier to the development of cooperation between the two countries. Therefore, Belarusian youth appear to have a weak understanding of the information needed to form an attitude towards cooperation between the two countries.

From the standpoint of cultural-historical psychology, attitudes towards intercountry integration can be viewed as an aspect of an individual's value choice. These choices are made as they develop their information-meaning field, which is influenced by various sociocultural and individual psychological factors. At the same time, the willingness (or lack of readiness) of Belarusian students to cooperate with Russia essentially involves sense-making, which is regulated by rep-

representations about Russia and mediated by processes of fusion, internationalization and the understanding of information in modern cultural-historical contexts. Cultural-historical psychology, as a heuristic theoretical-methodological lens, provides ample opportunity to carry out a detailed analysis of the process by which a personality forms its relationship with interstate interaction. In summary, the results of the study show that, for young Belarusian students, the idea of Russia as a fraternal, friendly state is compatible with the value of their own country's sovereignty. Taking these representations into account and developing them can help to define the personal meaning of interstate cooperation based on the national values of Belarusian youth, forming the basis for a positive attitude towards integration cooperation with Russia.

Conclusion

The results of the study showed that many Belarusian students have a positive image of Russia and a positive attitude towards integration and cooperation with Russia. This is a favorable factor for further rapprochement between Belarus and Russia. However, a significant proportion of Belarusian students surveyed do not perceive any personal significance in the cooper-

ation between the two countries. Furthermore, a significant proportion of the students surveyed do not find the cooperation between the two countries personally meaningful. This could hinder effective interaction between the two countries in the future. Some young Belarusian students fear that Belarus may lose its national sovereignty and economic independence as a result of cooperation with Russia. The study used a qualitative approach, which does not allow us to quantify this factor's contribution to the attitudes of Belarusian youth towards cooperation with Russia, but does allow us to acknowledge its presence.

We assume that the views of Belarusian students may be closely related to their sense of belonging to the Belarusian people and their emotional attitude towards their fellow citizens. Therefore, we believe that a quantitative study examining the links between types of social identity and the attitudes of Belarusian youth towards the development of cooperation between the two countries would be fruitful. We plan to conduct this study in the future.

Limitations. The use of an online survey restricted the ability to monitor data collection. Responses may have been subject to social desirability bias. The sample is limited in size and is not geographically representative.

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Appendix

Appendix A. Questions included in the research questionnaire (<https://doi.org/10.17759/pse.2025300>___)

1. Could you please tell me what you associate with Russia?
2. Is there anything about Russia that interests you? What exactly?
3. Is there anything about Russia that you dislike? What exactly?
4. Have you ever been to Russia? How often? What was the purpose of your visit?
5. Do you know any young people you know who have moved from Belarus to Russia? If so, could you briefly explain why they moved and what they hoped to achieve? Did they achieve their goals?
6. Do you know any young people among your acquaintances who have moved from Russia to Belarus? If so, please briefly explain why and what were they looking for? Did they achieve their goals?
7. How would you characterize the current relations between Belarus and Russia?
8. Are you aware about the existence of the Eurasian Economic Union (EAEU)? What do you know about it?
9. How do you view the integration processes and cooperation between Belarus and Russia?
10. Are there any areas of cooperation between Belarus and Russia that appeal to you? If so, which ones?
11. What do you think connects the peoples of Belarus and Russia? What might be the basis for integration processes between Belarus and Russia?
12. What could separate and alienate the Belarusian and Russian people? What might hinder integration processes between Belarus and Russia?
13. In your view, does Russia pose a threat to Belarus? Does Russia pose any danger to Belarus? If so, in what way?

Appendix B. Table showing the results of the study of the representations of Belarusian student youth about Russia (<https://doi.org/10.17759/pse.2025300>___)

Table

Associations, categories and subcategories of associations reflecting the image of Russia among young citizens of Belarus who participated in an online survey (answers to the question “Could you please tell me what you associate with Russia?”)

Category of associations	Subcategory of associations	Association (respondents' answers)
The population of Russia	Concrete people	<i>A. Pushkin, V. Putin, A. Usmanov</i>
	Representations about the population of country and about specifics of relationship with the population	<i>Asians, brother, brotherhood, heroism, bravery, friendship/friends/friend, friendly relations with my country, protection, beautiful girls, love, courage, reliable ally, nation, courage, patriotism, support, connection, family, sister, Slavs, commonwealth, neighbors, cooperation, union, ally, good protection</i>
Objective and subjectively perceived political-legal aspects and manifestations of the Russian statehood	State symbols, attributes, designation	<i>Power, country, tricolor, federation</i>
	Respondents' perception of state status and borders of country	<i>Great country, great state, great federal state, great power, friendly state, the largest country in territory, the world's largest country, superpower, tsarism</i>
	Representations of the negative aspects of statehood	<i>Corruption, propaganda</i>
	Representations about the current socio-political and socioeconomic context	<i>Wagner contractors, war, sanctions, SMO</i>
Military sphere	-	<i>Army, military power, belligerence, one of the strongest military states</i>
Economy of Russia	National currency and prices	<i>Money, cheap goods and services, rubles, weak ruble</i>
	Automobile industry	<i>Lada, car brand “Moskvich”</i>

Category of associations	Subcategory of associations	Association (respondents' answers)
	Resource	<i>Rich natural resources, large reserves of natural resources, gas, many useful resources</i>
Work and career prospects	-	<i>Opportunity, success, innovation, education, job</i>
Cities and infrastructure	Russian cities and regions	<i>Vladivostok, Moscow, St. Petersburg/Peter, Siberia</i>
	Architectural objects	<i>Golden bridge in Vladivostok, beautiful architecture, Red Square, Kremlin, mausoleum, Moscow City, bridges</i>
	Infrastructure and environment	<i>Endless lands, infrastructure, beautiful cities, crowdedness, space</i>
Russia's natural and climate characteristics	Description of nature and natural objects	<i>Volga, boundless forests, birch trees, land, bear, field, taiga, nature, diversity of nature</i>
	Features of climate	<i>Cold, cold Siberia, winter</i>
Ethnocultural sphere	Features, objects, achievements of culture and history	<i>History/close history, delicious food, sights, famous writers, Kazan/Nizhny Novgorod Kremlin, cosmos, culture, museums, music/beautiful music</i>
	Religion	<i>Orthodox Church</i>
	Stereotypical associations, cliché	<i>Balalaika, birch, vodka, mattress, bear, samovar, earhat, coats</i>
Overall positive representations	Describing the country's strength and power	<i>A great country, beautiful, scale, mighty, strength, might, invincible country, developed country, native, strong, modern, country with unique history and bright future, civilization</i>

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The gamification dilemma in education: A compromise model between extrinsic motivation and existential well-being

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Abstract

Context and relevance. Gamification is widely introduced into higher education as a means of enhancing academic motivation, yet its effects are contradictory: short-term gains in engagement are often accompanied by increased anxiety, burnout, and alienation. Existing approaches assess effectiveness mainly through instrumental metrics, ignoring students' subjective experiences and existential well-being. This contradiction and the theoretical vacuum around it determine the relevance of the study. **Objective.** To identify the contradiction between extrinsic motivation and the existential well-being of students in a gamified environment and to develop a theoretical compromise model. **Hypothesis.** The gamification dilemma is a systemic property arising from the contradiction between the external nature of its stimuli and the internal conditions of well-being; there are "critical points" in the design, the management of which allows a compromise to be found. **Methods and materials.** The study involved 180 undergraduate students of Lipetsk State Technical University (age 18–23, $M = 20.2$; $SD = 1.3$; 60% female), selected by purposive convenience sampling through the online platform Yandex Forms, who systematically encountered elements of gamification in their academic courses. The authors' scales for assessing the perception of gamification elements were used, along with validated questionnaires on academic motivation, anxiety, impostor syndrome, and academic cynicism. **Results.** The key predictor of increased anxiety, impostor syndrome, and learning disengagement is the subjective perception of gamification as a system of external control, rather than its mere presence; public comparison and the perception of bonus points as a mandatory race are the most destructive. **Conclusions.** The gamification dilemma has been empirically confirmed. The developed model identifies an "incompatibility zone", a "managed compromise zone", and four "critical points" for design. It is recommended to redesign educational environments, shifting the focus from external control to supporting students' autonomy, competence, and meaningfulness.

Keywords: gamification, higher education, extrinsic motivation, existential well-being, impostor syndrome

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Дилемма геймификации в образовании: модель компромисса между внешней мотивацией и экзистенциальным благополучием

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Резюме

Контекст и актуальность. Геймификация широко внедряется в высшее образование как средство повышения учебной мотивации, однако ее эффекты противоречивы: краткосрочный рост вовлеченности нередко сопровождается ростом тревожности, выгорания и отчуждения. Существующие подходы оценивают эффективность преимущественно по инструментальным метрикам, игнорируя субъективные переживания и экзистенциальное благополучие студентов. Это противоречие и теоретический вакуум вокруг него определяют актуальность исследования. **Цель.** Выявить противоречие между внешней мотивацией и экзистенциальным благополучием у студентов в геймифицированной среде и разработать теоретическую модель компромисса. **Гипотеза.** Дилемма геймификации — системное свойство, порождаемое противоречием между внешним характером ее стимулов и внутренними условиями благополучия; существуют «критические точки» в дизайне, управление которыми позволяет найти компромисс. **Методы и материалы.** В исследовании приняли участие 180 студентов бакалавриата Липецкого государственного технического университета (возраст 18–23 года, $M = 20,2$; $SD = 1,3$; 60% женщин), отобранных целевым стихийным способом через онлайн-платформу Яндекс.Формы, систематически сталкивающихся с элементами геймификации в учебных курсах. Использовались авторские шкалы оценки восприятия элементов геймификации, валидированные опросники: академической мотивации, тревожности, синдрома самозванца, учебного цинизма. **Результаты.** Ключевым предиктором роста тревожности, синдрома самозванца и учебной отстраненности выступает субъективное восприятие геймификации как системы внешнего контроля, а не сам факт ее наличия; наиболее деструктивны публичное сравнение и восприятие бонусных баллов как обязательной гонки. **Выводы.** Дилемма геймификации эмпирически подтверждена. Разработанная модель выделяет «зону несовместимости», «зону управляемого компромисса» и четыре «критические точки» для дизайна. Рекомендовано перепроектировать образовательные среды, сместив акцент с внешнего контроля на поддержку автономии, компетентности и осмысленности обучающихся.

Ключевые слова: геймификация, высшее образование, внешняя мотивация, экзистенциальное благополучие, синдром самозванца

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Introduction

Higher education is increasingly borrowing practices from other fields in an attempt to overcome the crisis of the classical model of learning. One of the most in-demand is gamification: points, badges, and ratings meant to motivate. At first it was seen as a universal means of awakening student engagement, but today it has itself found itself in a vulnerable position. Short-term growth in engagement turns into deferred costs — anxiety, burnout, impostor syndrome, alienation. A mechanism designed as a stimulus undermines the psychological foundations of learning and shifts it toward a pursuit of metrics at the expense of meaning.

It is precisely this dilemma, and the absence of a coherent theory around it, that makes the topic so acute. Common approaches still operate within the logic of instrumental effectiveness: success is measured by clicks, the number of completed tasks, and other superficial metrics. Such a reductionist view leaves out of account the student's subjective experience, their value orientations, and their existential needs. Meanwhile, a way out of the crisis is possible only at the intersection of sociology, psychology, and pedagogy. What is needed is a theoretical model that would not be limited to stating side effects, but would uncover the very nature of the contradiction and outline ways of resolving it.

The object of the study is gamification as a social technology embedded in the higher education system. The subject is the systemic contradictions that arise between the task of sustaining external learning motivation and the need to preserve the existential well-being of students in a gamified environment.

The aim of the work is to build a theoretical model of the gamification dilemma, which would describe the zones and mechanisms of compromise between external motivation and the existential well-being of students.

To achieve this goal, the following **tasks** are set.

1. To conduct a critical analysis of gamification practices and identify the elements that generate a contradiction between motivation and well-being.
2. Operationalize the concepts of extrinsic motivation and existential well-being.
3. Develop an empirical research program.
4. Based on empirical data, identify specific situations in which this dilemma manifests itself.
5. To build and verify a theoretical compromise model with the identification of “incompatibility zones”, “controlled compromise zones” and “critical points”.

The main **hypothesis** of the study is that the gamification dilemma is not a side effect of particular implementation errors, but a systemic property that arises from a fundamental contradiction between the external nature of gamification stimuli and the intragenic (internal) conditions of existential well-being. We assume that there are “critical points” in the design of a gamified system (for example, the publicity of a rating or the normative nature of badges), the management of which allows us to find the optimal compromise between the goals of motivation and well-being.

Materials and methods

To empirically test the hypothesis of a systemic gamification contradiction, a quantitative cross-sectional correlation study based on self – reports was conducted – observational, without experimental manipulations and interventions. Instead of abstract “game elements”, three specific and socially saturated phenomena that are ubiquitously present in Russian higher education have come into focus: public honor boards, public success comparison practices, and a system of additional points. This made it possible to operationalize the problem in terms understandable to the respondents and to measure the impact of precisely those mechanisms that, according to the theoretical framework, are most likely to generate a dilemma.

Study design: cross-sectional correlational study. Data collection was conducted on the basis of Lipetsk

State Technical University (Lipetsk) in October 2025. The survey was implemented through the online platform Yandex.Forms.

The sampling procedure. The link to the survey was distributed through faculty mailing lists, student chats, and social media groups, with the assistance of academic advisors. The survey reached an audience of approximately 1,200 undergraduate students across four fields of study. It remained open for 14 days (October 1–14, 2025). Of the 243 students who started the survey, the final sample consisted of 180 who completed it in full (15% of the audience reached). Sixty-three questionnaires were excluded: 48 because more than 10% of items had been skipped, and 15 because the respondents failed the attention checks. The pilot study was conducted separately in September 2025 ($n = 30$); its data were not included in the main sample.

Inclusion criteria: enrollment in an undergraduate (bachelor's) program; voluntary consent; full completion of all instruments (no missing responses); successful completion of the attention checks. Exclusion criteria: enrollment in master's, specialist, or doctoral programs; skipping more than 10% of questionnaire items; participation in the pilot version.

Sample size and its rationale. The final sample consisted of 180 participants, which exceeds the minimum recommended threshold for multiple regression analysis with up to 10 predictors ($n \geq 15 \cdot k$, where k is the number of predictors; with $k = 10$, the minimum $n = 150$).

Socio-demographic and academic characteristics. Age – 18–23 years ($M = 20,2$; $SD = 1,3$); gender – 108 women (60%) and 72 men (40%); predominantly ethnic Russians. Distribution by year of study: 1st year – 45 participants (25%), 2nd year – 54 participants (30%), 3rd year – 48 participants (27%), 4th year – 33 participants (18%). Field of study: humanities – 65 participants (36%), natural sciences – 58 participants (32%), technical – 57 participants (32%). The average academic performance score on a 100-point scale was 87,2 (range 72–98), indicating a high level of academic achievement among the respondents.

Sample limitations. The sample is not strictly representative of the general population of undergraduate students, owing to:

- 1) the convenience-based nature of sampling, which limits the possibilities for generalization;
- 2) gender imbalance (60% women) and imbalance across fields of study (a predominance of the humanities);
- 3) geographic limitations (a single university, a single region);
- 4) the self-selection effect (students with higher motivation were more willing to participate).

Accordingly, the results can be validly generalized only to students similar to this sample in demographic and academic characteristics. When interpreting the results, possible confounding factors were taken into account.

Procedure. The survey was conducted via Yandex Forms (15–20 minutes). The instruments were presented in a fixed order: demographics → perception of gamification → OAM → STAI → impostor syndrome → academic cynicism. The order of presentation was not randomized; three attention checks were used, and respondents who failed them were excluded.

Ethical aspects. The study complied with the Ethical Code of the Russian Psychological Society (RPS). Participation was voluntary and began with written informed consent; participants were informed about the purpose, the procedure, and their right to withdraw at any stage without consequences. Anonymity and confidentiality were guaranteed: no personal data were collected, responses were stored in de-identified form, and they are presented only in aggregate form. No compensation was offered, and participation did not affect academic outcomes.

Instruments. The following instruments were used to collect the data.

Perception of gamification elements. For each element, respondents rated: frequency of exposure (a 5-point scale from “never” to “constantly”); degree of perceived pressure (a 7-point Likert scale, single indicator item: “I feel obligated to participate in this race”); and subjective importance (a 7-point Likert scale). Internal consistency of the subscales in this sample: $\alpha = 0,78–0,85$.

Academic Motivation Questionnaire (OAM), which makes it possible to identify types of academic motivation (intrinsic, extrinsic, amotivation). 28 items, 7-point Likert scale. Internal consistency of the subscales in this sample: $\alpha = 0,72–0,84$.

Spielberger–Khanin Anxiety Scale (STAI) (Khanin, 1978) for measuring state and trait anxiety (with a focus on the academic context). 40 items, 4-point scale. Internal consistency in this sample: $\alpha = 0,83$ (state anxiety), $\alpha = 0,86$ (trait anxiety).

Clance Impostor Phenomenon Scale (Chrisman, Clance, 1995), short 10-item version, 7-point Likert scale. Internal consistency in this sample: $\alpha = 0,81$.

Academic Cynicism Scale (an adaptation of the “Detachment” subscale of the Oldenburg Burnout Inventory (OLBI) for academic settings (Bolotov et al., 2021)). 8 items, 4-point scale. Internal consistency in this sample: $\alpha = 0,75$.

Extrinsic motivation was operationalized through responses to specific stimuli — for example, the state-

ment “I try to complete additional assignments in order to earn bonus points”. Responses were recorded on a 7-point Likert scale.

Statistical analysis plan. The data were processed in IBM SPSS Statistics. First, descriptive statistics (M, SD, ranges) were calculated; then, to identify initial associations, correlation analysis (Pearson and Spearman correlation coefficients) was performed between measures of gamification perception, academic motivation, anxiety, impostor syndrome, academic cynicism, and academic performance.

The hypothesis was tested using sequential (hierarchical) multiple regression analysis with three dependent variables: anxiety, impostor syndrome, and academic cynicism. At the first step, the model included control variables (year of study, grade point average); at the second, the objective frequency of exposure to gamification elements; and at the third, the subjective perception of these practices as controlling. This approach made it possible to assess the contribution of perceived normative pressure specifically to the decline in well-being — that is, to directly test the theoretical core of the dilemma.

Results

To conceptualize the contradiction identified above and to demonstrate its systemic character, the phenomenon of gamification should be moved beyond the confines of applied pedagogy and considered within a broader theoretical context. One such context is cultural-historical psychology, which interprets the development of higher mental functions as mediated by cultural tools and social interaction. In its logic, gamification is not a set of techniques but a cultural tool (a sign) that organizes educational activity, which makes it possible to see its profound consequences for the development and well-being of the learner. In this study, gamification is understood as a social technology in the sense of M. Foucault, who analyzed disciplinary practices (Foucault, 2023): a system of purposeful intervention that transforms behavior and interactions in the educational environment through procedures borrowed from games. The classical approach of K. Werbach and D. Hunter (2012) focuses on external design and describes gamification through points, badges, and leaderboards (PBL). Ian Bogost (Bogost, 2016) goes further and reveals its essence as exploitative design, in which mechanics serve predefined actions and often manipulate the user. In operational terms, gamification acts as a behavior-management tool that creates external incentives to compensate for a lack of internal interest.

Relying on external incentives, gamification directly addresses extrinsic motivation, and the theoretical basis for its analysis is provided by Self-Determination Theory (SDT) as developed by E. Deci and R. Ryan (Deci, Ryan, 2017). According to this theory, extrinsic motivation is arranged along a continuum — from fully controlled, where an action is performed for the sake of reward or to avoid punishment, to integrated, in which an external requirement is consciously accepted as a personal value. Traditional gamification, with its emphasis on points and public ranking, most often activates controlled forms in particular. In research practice, these are captured through easily measurable quantitative indicators — measures of academic activity (attendance, timely submission of assignments), “click activity” in learning management systems (LMS), and other superficial engagement metrics. However, such indicators capture only the behavioral surface and say nothing about the qualitative characteristics of the educational process.

The opposite pole of the dilemma is the student's existential well-being. This construct can also be understood through self-determination theory, but in its positive rather than deficit-based dimension. Here, existential well-being is understood as a state that arises when basic psychological needs are satisfied — autonomy (experiencing oneself as the source of one's own actions), competence (a sense of effectiveness in interacting with the environment), and relatedness (a sense of belonging and reciprocity) — enriched by an existential dimension of meaningfulness and authenticity (Deci, Ryan, 2017). Accordingly, its operationalization requires a shift of attention from external actions to internal states.

The key negative indicators that signal a violation of well-being in a gamified environment are: elevated state and trait anxiety, measured, for example, by the Spielberger scale; manifestations of impostor syndrome, a phenomenon described by P. Clance and S. Imes (1978), in which successes are attributed to chance or deception rather than to one's own abilities; a sense of alienation from the learning process, reduced to the accumulation of formal indicators; and symptoms of burnout, according to the model of C. Maslach and S. Jackson (1981) — exhaustion, cynicism, and reduced personal accomplishment.

A comparison of these two conceptual frameworks allows us to formulate the core of the theoretical dilemma. On the one hand, gamification as a social technology works in the logic of extrinsic control: internal interest is replaced by external reinforcement, and the educational trajectory breaks down into a set of atomic, measurable actions. On the other hand, existential well-being and sustained, high-quality engagement rest on an intrageneous logic of self-development, in which autonomy, personal meaning, and the experience of authenticity are the driv-

ing force. The fundamental contradiction is that a technology initially aimed at increasing engagement, when applied uncritically, systematically creates conditions that undermine its own psychological prerequisites. The dilemma, therefore, appears not as an accidental malfunction but as an immanent, systemic conflict between two different orders of regulation of human activity.

To better understand the systemic nature of the identified dilemma, it is useful to consider it in the context of cultural-historical psychology and activity theory — in particular, through the concept of jointly distributed learning activity developed by V. V. Rubtsov (Rubtsov, 1996). This approach shifts the focus from individual knowledge acquisition to the organization of collective learning action, in which the task is solved by a group and the functional structure of the activity — goal setting, planning, control, and evaluation — is distributed among its participants. What comes to the fore is not so much personal achievement as the development of ways of cooperation, communication, and reflection that enable the group to become aware of and optimize its shared ways of working.

From this perspective, the traditional model of gamification, built around individualized competition, comes into fundamental conflict with the logic of jointly distributed activity. Such gamification:

1. individualizes and ranks where joint work requires cooperation and solidarity;
2. spurs external competition for limited places in the ranking, destroying the atmosphere of mutual trust and open exchange of views, without which collective problem-solving is simply impossible;
3. shifts the focus from the process — the organization of joint inquiry — to an individual result, thereby blocking the development of reflective abilities aimed at analyzing group methods of action.

Thus, the conflict between gamification and existential well-being acquires yet another — socio-genetic — dimension. The contradiction lies not only in the clash between external control and the individual's internal needs, but also in the confrontation between an individualizing technology and a socially oriented pedagogical model aimed at forming a collective subject of activity. Such an analysis makes it possible to see the dilemma not as a technical failure, but as a consequence of the mismatch between the instruments used and the fundamental psychological patterns governing the development of cognitive and communicative abilities in learning.

As shown in the Materials and Methods section, the sample included 180 undergraduate students (60% women, 40% men; mean age = 20,2; SD = 1,3; average academic performance score = 87,2). This indicates that the study involved predominantly successful and moti-

vated students, for whom educational strategies and the psychological climate of the learning environment are of particular importance.

An analysis of the prevalence of the gamification elements studied confirmed that they have long since become routine pedagogical practice in contemporary Russian higher education. By far the most widespread was the system of additional (bonus) points: 94,4% of respondents encountered it “often” or “constantly”. The practice of publicly comparing achievements — whether by a teacher or as part of group work — was also extremely widespread: 81,1% of students reported its regular presence in the learning process. The honor roll, or public academic ranking, was somewhat less common, yet it remained a significant element for 71,7% of respondents. However, the key indicator for testing the hypothesis proved to be subjective perception of these practices. More than three quarters of respondents (77,8%) agreed to some extent that such practices create a sense of compulsory participation in a competition — a forced “race” for points and status. The strongest sense of normative pressure was associated specifically with bonus points and situations of public comparison, which indicates that, in students' perception, these function not as supportive instruments but as mechanisms of external control.

The results of the correlation analysis presented in Table 1 revealed statistically significant associations that illuminate the structure of the dilemma under study. Consistent positive associations emerged between the frequency of exposure to gamification elements and the level of extrinsic motivation, confirming their instrumental effectiveness as stimulants of activity. An even stronger association was found between the frequency of use of these practices and their perception as controlling, underscoring their leading role in shaping an external locus of regulation of learning behavior.

At the same time, the analysis revealed the negative side of these practices. The perception of gamification as a system of control showed significant positive correlations with all indicators of declining existential well-

being. The most pronounced associations were with impostor syndrome and state anxiety, indicating a direct link between experiencing the learning environment as compulsively competitive and growing internal doubts about one's own competence, as well as acute anxiety related to assessment. Moderate but statistically significant correlations were found with trait anxiety and academic detachment, pointing to a long-term risk of chronic emotional distress and a defensive, cynical attitude toward educational activity. It is important to note that extrinsic motivation itself correlated positively with negative indicators, confirming that the motivational gain from gamification is inextricably linked to psychological costs.

To identify causal patterns and to determine specific manageable parameters (“critical points”), a multiple regression analysis was performed with stepwise entry of variable blocks. At the first stage, year of study and average academic performance score were included as control variables; the latter, being high in the sample, showed a weak but significant negative association with impostor syndrome and academic detachment, pointing to the protective role of academic self-confidence.

The introduction of variables reflecting the objective frequency of use of gamification elements at the second step yielded a mixed picture. Although public comparison and bonus points predicted an increase in specific negative indicators, the overall explanatory power of the models remained moderate. The sharp increase in the predictive power of all three regression models — for anxiety, impostor syndrome, and academic detachment — came at the final step, when variables capturing the subjective perception of these practices as obligatory and controlling were included in the analysis. The main contribution to explaining the variance of the dependent variables was made by this block of predictors, not by the mere presence of a ranking or bonus points.

The results summarized in Table 2 made it possible to clearly identify the two most destructive critical points in the design of the educational environment.

Table 1

Results of the correlation analysis (Pearson)

Couple of variables	R	P
Frequency of gamification elements — External motivation	0,43	< 0,01
Frequency of gamification elements — Perception as controlling	0,58	< 0,01
Perception of gamification as control — Impostor syndrome	0,54	< 0,01
Perception of gamification as control — Situational anxiety	0,50	< 0,01
Perception of gamification as control — Personal anxiety	0,39	< 0,01
Perception of gamification as control — Learning disability	0,46	< 0,01
Extrinsic Motivation — Impostor Syndrome	0,42	< 0,01

Note: all correlation coefficients were calculated using Pearson's method; a significance level of $p < 0,05$ is considered statistically significant, all reported values are $p < 0,01$; $N = 180$ for all pairs (no missing data).

1. The perception of public comparison as normative pressure emerged as the leading predictor of both state anxiety and impostor syndrome. This suggests that teacher-sanctioned public comparison of student results is a significant factor undermining the sense of basic competence and autonomy: the student is constantly in a state of evaluation, and their successes begin to provoke deep internal doubts about whether those successes are deserved.

2. The perception of the bonus point system as a mandatory “race” proved to be the strongest predictor of academic detachment — here we see the paradoxical effect of a stimulus turning into an instrument of alienation. When additional activity is experienced not as an opportunity but as a compulsory requirement for maintaining competitiveness, emotional distancing and a cynical attitude toward the very essence of educational activity become a predictable psychological reaction.

The quantitative data did more than merely confirm the existence of the dilemma among high-achieving students — they pinpointed with high precision the specific, subjectively experienced aspects of gamification. It is precisely the management of these aspects that holds the key to mitigating the systemic contradiction between motivation and well-being.

Discussion of the results

The results obtained are consistent with the proposed theoretical model: gamification practices function as a social technology of management and shift the regulation of activity outward. The main predictor of negative consequences is the subjective experience of this regulation as obligatory and coercive, which confirms the postulate of self-determination theory regarding the frustration of the needs for autonomy and competence.

The associations identified also reveal the mechanisms of the harm itself. The perception of public comparison as pressure undermines autonomy, turning the student into an object of external evaluation, and at the same time undermines the sense of competence through normative comparison with others; against the background of high academic performance, this leads to one's

own achievements beginning to seem insufficient or a matter of chance. The perception of bonus points as a “race”, in turn, devalues the inner content of learning, giving rise to cynicism and alienation — which fits well within the concept of burnout.

On the basis of the analysis, a theoretical model of the gamification dilemma is proposed — not a linear scale, but a field of practices built around two axes: “potential for external motivation” and “risk to existential well-being”. Three principal zones can be distinguished within this field.

The “zone of incompatibility” includes practices with the most consistent association with a decline in well-being and a questionable motivational effect — public rankings and teacher-led public comparison of results. These practices institutionalize social comparison, and reforming them within the framework of gamification is extremely difficult, since their essence is the maintenance of hierarchy and public competition. The contradiction with the need for autonomy and stable competence is so great here that the model calls not for adjustment but for abandoning such practices altogether.

Thus, the boundary between the zones is determined by a set of “critical points” — sensitive system parameters, a slight change in which leads to a qualitative shift in their impact. Our data allow us to specify four such points.

1. Public visibility vs. privacy. Public availability of results is a key driver of social anxiety; a shift toward privacy removes this stress factor.

2. Focus on ranking (comparison with others) vs. focus on personal progress (comparison with oneself). The former feeds impostor syndrome and frustrates the need for competence; the latter satisfies it.

3. Obligatoriness vs. voluntariness. Normative pressure is a direct threat to autonomy and the main cause of cynicism; voluntariness restores a sense of personal choice.

4. Uniformity vs. diversification of success criteria. A narrow range of rewarded outcomes narrows the field for demonstrating competence; a broader range allows different students to find their own “entry point”.

The proposed model shifts the focus from the question “to use or not to use gamification?” to the ques-

Table 2

Results of multiple regression analysis (final step)

Dependent variable	Predictor	B	P	ΔR^2
Situational anxiety	Perception of public comparison as a regulatory pressure	0,41	< 0,001	0,18–0,24
Impostor syndrome	Perception of public comparison as a regulatory pressure	0,44	< 0,001	0,18–0,24
Academic detachment	Perception of bonus points as a mandatory «race»	0,38	< 0,001	0,18–0,24

Note: ΔR^2 is the increase in the explained variance at the final step, when the block of subjective perception was added; $p < 0,001$ for all models. The control variables (course of study and average score) were introduced in the first step, their coefficients are omitted for the sake of compactness of presentation.

tion “how should its elements be designed so as to minimize harm to well-being while preserving motivational potential?”. It serves as an analytical framework for auditing existing educational environments and designing new ones in which technological tools are subordinated to humanistic goals of personal development. A visualization of the theoretical model is presented in the figure.

The shift in gamification design toward privacy, personal progress, and voluntariness overcomes the logic of individualized competition and lays the groundwork for designing platforms that support jointly distributed learning activity. The model thus serves not only as a tool for correction but also as the first phase in creating technologies that cultivate cooperation and the formation of a collective subject of knowledge.

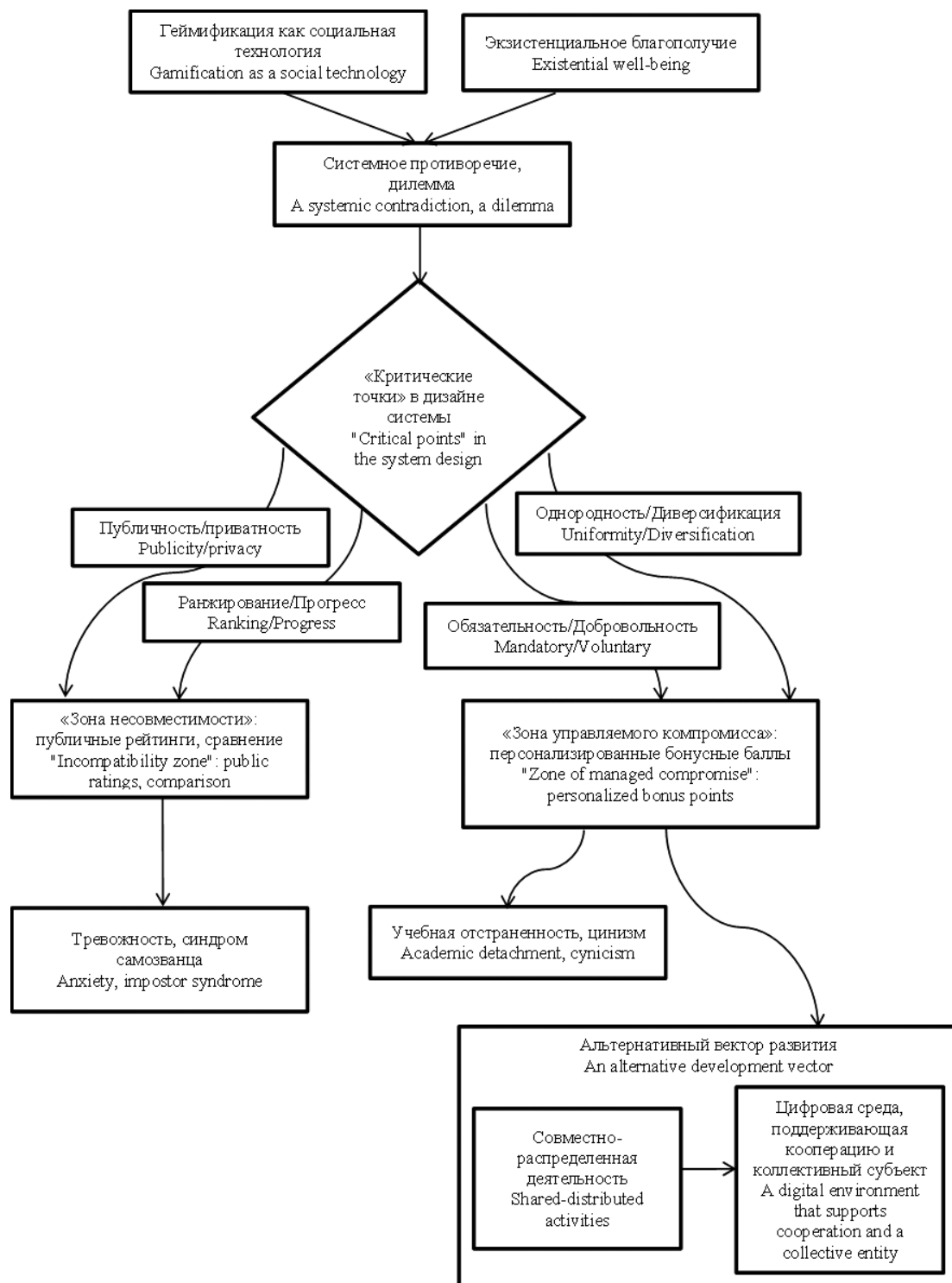


Fig. Visualization of the theoretical model

The study confirmed the hypothesis that the gamification dilemma is a systemic property rooted in a mismatch between the extrinsic nature of its incentives and the intrageneous conditions of well-being. The findings show that the practices of public comparison and bonus points are associated not only with an increase in extrinsic motivation but also with heightened anxiety, impostor syndrome, and academic detachment; moreover, the decisive role is played by the subjective perception of these practices as a system of compulsory control, rather than by their mere presence.

Conclusion

The theoretical contribution of this study lies in the consistent fulfillment of the objectives set. First, the dilemma was operationalized through concrete social practices, which made it possible to move away from abstract reasoning toward measuring the impact of real tools. Second, a theoretical operationalization of the key constructs was carried out: extrinsic motivation was measured through its controlled forms, and existential well-being through negative indicators. Third, specific situations in which the dilemma manifests itself were identified using quantitative analysis, which showed in which aspects and in connection with which elements it manifests itself most acutely. Finally, on the basis of the data obtained, a theoretical model was constructed that contributes to the sociology of education and to the theory of gamification: it proposes a practice-oriented scheme that distinguishes between “zones of incompatibility” and “zones of managed compromise” and identifies manageable parameters (“critical points”) for redesigning educational environments.

The findings of the study provide a basis for specific recommendations on overcoming the dilemma in higher education practice.

1. Abandoning destructive practices. Practices that fall into the “zone of incompatibility” — primarily public rankings that emphasize hierarchy and teacher-sanctioned public comparison of students — should be reconsidered. They are best replaced with alternatives such as individual progress charts or systems that visualize a student's personal development trajectory relative to their own baseline.

2. Principles of humanistic redesign. For practices in the “zone of managed compromise” (such as a bonus point system), a consistent shift in design along four axes is necessary:

- From public visibility to privacy: ensuring confidentiality of learning outcomes and feedback.
- From ranking to personal progress: reorienting reward systems from comparing students with one another toward tracking and rewarding personal growth and skill acquisition.
- From obligatoriness to voluntariness and choice: giving students the option to select from a menu of optional activities and to determine for themselves how intensively to participate in gamified elements.
- From uniformity to diversification of criteria: embedding in the reward system diverse forms of demonstrated competence (research, creative, communicative, and volunteering activities), which supports meaning-making and allows for multiple intelligences to be taken into account.

3. A checklist for audit and design. The proposed “critical points” together form a practical checklist for instructors and curriculum developers. When creating or evaluating a gamified course, it is useful to ask yourself a series of questions: How public are the results? Is comparison with others encouraged, or comparison with oneself? Is participation perceived as voluntary? Are different forms of success taken into account? The answers help diagnose potential risks to student well-being and adjust the design in a timely manner.

Directions for future research are also outlined. First, longitudinal studies tracing the dynamics of well-being and motivation are needed; such studies would make it possible to establish causality and the long-term effects of gamification. Another promising avenue is the study of the moderating role of personality traits (for example, perfectionism or resilience), which may shape the perception of a gamified environment. Particularly deserving of attention is a comparative analysis of the effectiveness and consequences of gamification across disciplinary contexts (natural sciences vs. humanities) and cultural contexts, where attitudes toward competition and individualism may differ substantially. Finally, qualitative research delving into students' personal experiences and narratives would deepen our understanding of the mechanisms underlying the identified “critical points”.

Limitations. The subjective nature of the data (self-reports) is vulnerable to the influence of social desirability and momentary mood. In addition, the specificity of the sample — high-achieving students — means that the identified effects may be even stronger in groups with lower academic confidence.

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Natalia N. Pachina — overall scientific supervision, critical revision and editing of the manuscript, approval of the final version of the article for publication.

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The authors declare no conflict of interest.

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The study complies with the “Code of Ethics of a Psychologist” of the Russian Psychological Society. Participation was voluntary; written informed consent was obtained prior to the survey. Anonymity and confidentiality were guaranteed: no personal identifiers were collected, responses were coded and stored in depersonalized form with restricted access, and results are reported only in aggregate form. Participation was not rewarded and did not affect academic outcomes; respondents could withdraw at any stage without consequences.

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CRITICISM AND BIBLIOGRAPHY
КРИТИКА И БИБЛИОГРАФИЯ

Рецензия | Review

Review on the book “Dialogs on L.S. Vygotsky”¹

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Рецензия на книгу «Диалоги о Л.С. Выготском»²

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The book is based on a series of discussions between Professors N.E. Veraksa (M.V. Lomonosov Moscow State University) and N.N. Veresov (Monash University, Australia) on the key concepts of Vygotsky's cultural-historical theory and the possibilities for its application in educational practice. The two scholars have a long-standing collaborative relationship and they are coauthors of a number of academic papers. The book is aimed at early years educators, psychologists, students specialising in developmental psychology, and anyone interested in issues relating to child development.

In 2022, the UNESCO Department of Early Childhood Education and Upbringing at the International Pedagogical Academy of Pre-school Education organised an educational project – a series of seminars entitled “L.S. Vygotsky's Cultural-Historical Concept and Contemporary Preschool Education”. The full versions of these talks are available on the IPAE website and on YouTube.

N.E. Veraksa and N.N. Veresov emphasise that the aim was “...not so much to “educate” as to spark the audience's interest in L.S. Vygotsky's theory. We wanted to motivate our listeners to read his works and those of other representatives of this academic school for themselves and, most importantly, to help the participants in our discussions to independently reflect on how these ideas might be applied in their own teaching practice” (Pp. 7–8).

The authors chose the topics of the conversations themselves, but did not discuss the content in advance; consequently, the reader is presented with lively, and in many respects even spontaneous dialogues. At the end of each discussion, time was set aside to answer questions from the audience. Some of these answers are also included in the book.

This rare genre might be termed “literary peripateticism”. Its main merit lies in the fact that the reader does not merely receive academic information, but is drawn, in

¹ Veraksa N.E., Veresov N.N. Dialogs on L.S. Vygotsky. Moscow: Moscow University Publ., 2025. 159 p.

² Веракса Н.Е., Вересов Н.Н. Диалоги о Л.С. Выготском / Предисл. Ю.П. Зинченко. М.: Изд-во Московского университета, 2025. 159 с.

a natural way, into the authors' train of thought, gaining the opportunity to compare theoretical positions, explore possible developments and seek ways to apply "big" ideas in practice. Thus, the book not only provides a conceptual framework but also vividly demonstrates the cultural and historical mode of thought in psychology and pedagogy.

In academic literature, there are two main types of dialogue: the Socratic, in which there is a joint "search for truth", and the didactic, in which a figure such as Philotes proclaims truths already known to him to the assembled audience. "Dialogues on L.S. Vygotsky" is closer to the second type. The role of Philotes fell to N.N. Veresov, whilst N.E. Veraksa guides the course of the dialogues with questions, occasionally interjecting his own comments and remarks.

The book comprises a total of eight conversations.

1. Vygotsky's cultural-historical concept and contemporary pre-school education.

2. The concept of "ideal" and "actual" forms, and the process of development.

3. The zone of proximal development.

4. Vygotsky's laws.

5. Vygotsky's dialectic.

6. The psychology of creativity in Vygotsky's works.

7. Dialectics and the study of the process of child development.

8. Consciousness: cultural or natural?

The authors of the book unanimously insist that the central category in Vygotsky's logic is development, understood as a dialectically contradictory process rather than a mere accumulation of changes. In the first conversation, Veresov defines the subject of the cultural-historical theory: it is the process of the development of higher psychological functions. "Development presupposes both preservation and change. These two opposing elements, as it were, determine the vector of development", adds Veraksa (p. 12). Essentially, this refers to Hegel's "Aufhebung" – the negation that preserves what is valuable. Vygotsky constantly employed this category of dialectics and on more than one occasion specifically explained its meaning, in particular when discussing the interconnection between "the lines of the child's organic and cultural development".

There is also no disagreement between the authors regarding their understanding of *experience*. In the mature cultural-historical theory, experience is assigned the role of a "dynamic unit of consciousness" (Vygotsky). The category of experience allows us to understand how a particular life situation is refracted in the child's consciousness.

Veresov deliberately uses the concept of "refraction" in place of "reflection" when discussing higher psychological functions. In his view, "the principle of reflection works very well in physiology and for natural, elementary, simple functions. But the principle of refraction begins where human psychology itself begins" (p. 18).

It is worth noting that Vygotsky himself never, anywhere, contrasted "refraction" with "reflection", let alone as superior and inferior principles of the mind's functioning. In one of his final lectures, he emphasised that our consciousness is always a reflection of reality and that this is the only possible path to a scientific explanation of con-

sciousness. Having rejected the materialist principle of reflection, Veresov logically concludes that "...consciousness can arise only from another consciousness" (p. 35).

Among the most valuable sections of the book is the conversation on "ideal" and "actual" forms in the process of development. This is one of the least explored problem areas of cultural-historical theory. For development, the "environment" as a set of external influences and factors is insufficient. It is necessary that "ideal forms" be present in our lives from early childhood, entering into interaction with actual forms and setting the vector for the development of the personality. "Vygotsky writes quite explicitly: the greatest distinguishing feature of child development is that this development takes place under conditions of interaction with the environment in which the ideal form, the final form, the one that should appear at the end of development, not only exists in the environment and comes into contact with the child from the very beginning, but it actually interacts, actually exerts an influence on the primary form, on the child's first steps in development; that is to say, something that is to take shape at the very end of development is, in some way, already present now and influences the very first steps of that development" (Veresov, p. 33).

The conversation on the zone of proximal development (ZPD) aims to liberate this concept from the "formalism" that has become entrenched in its interpretations over many years both in our country and abroad. Veraksa sees the reason for this state of affairs in the fact that the problem of the ZPD is discussed without due connection to the problem of experience (*perezhivanie*) and, moreover, in the harmful influence of the Piagetian paradigm. Agreeing with this, Veresov examines an example of a "primitive and superficial interpretation" of the ZPD from an English-language handbook on pedagogy.

Phenomena of the external environment are not reflected in experiences as in mirrors, but are refracted in one way or another, always in a unique manner, – Veresov emphasises (p. 48), apparently assuming that in an ordinary mirror light is reflected without refraction. Veresov sees in the principle of refraction the key to every child's unique individuality: each child experiences the events happening to them in their own way each time. This is what Vygotsky teaches us – whereas the principle of reflection, "dating back to Descartes", levelled out children's uniqueness. (In this connection, it is worth recalling that it was none other than Descartes who discovered the law of the refraction of light).

The differences between Veraksa's and Veresov's positions lie, chiefly, in their methodological emphases and the degree of categorical certainty in their judgements.

Veresov tends to argue polemically, distinguishing the "classical" reading of Vygotsky from "new, contemporary interpretations", for which many interpreters take offence (p. 13). Below, Veresov draws a clear distinction between the approaches of L.S. Vygotsky and A.N. Leontiev, whilst not denying the kinship of their theoretical views and approaches. Both regard the social environment as the *source* of development, rather than an external factor or "setting" in which personality de-

velopment takes place. However, Leontiev did not accept the proposition that experiences occupy a central place in the system of consciousness. "He did not agree with this; he criticised Vygotsky for reducing everything to the idea of experience. According to Leontiev, it is activity itself that is the source of development" (p. 34). This fundamental disagreement gave rise to many others in the subsequent debate — for example, "completely opposing views" on the nature of children's play (p. 61), as well as Leontiev's accusations of idealism" levelled at Vygotsky (p. 35).

Veraksa is not quite so categorical in his assessments, although he generally does not dispute his interlocutor's assertions. Refraining from direct debate on theoretical issues, he repeatedly steers the conversation towards the realm of practical pedagogy (a field more familiar to the majority of the audience). "How can we recognise developmentor the lack thereof—in the pedagogical process? What are the indicators of development? What does the zone of proximal development mean in practice?" asks Veraksa. Veresov, too, readily takes up pedagogical topics.

The discussion on the zone of proximal development (ZPD) aims to free this concept from the "formalism" that has become entrenched in its interpretations over many years, both here and abroad. Veresov attributes this state of affairs to the fact that the issue of the ZPD is discussed without due regard for the problem of experience and, moreover, under the detrimental influence of Piaget's paradigm. Agreeing with this, Veresov analyses an example of a "primitive and superficial interpretation" of the ZPD from English-language pedagogy textbook.

Summarising his twenty years of research experience, Veresov demonstrates that Vygotsky's ZPD can be regarded as a psychological reality, a diagnostic method,

and a theoretical concept. "We must therefore, every time we speak of the zone of proximal development, clarify: what exactly are we referring to when we speak of the zone of development?" (p. 53). The ZPD constitutes a methodologically complex, multi-layered conceptual construct. It is a "meeting place for the child and the adult", a space for their cultural interaction

The fourth discussion focuses on the psychological laws discovered by Vygotsky. According to Veresov, these are divided into two groups: the laws governing the genesis of higher psychological functions and the laws governing the interaction of psychological functions within the system of consciousness. Towards the end of the conversation, the issue of cultural age is raised, which "Vygotsky merely mentions but does not elaborate on" (p. 87). No specific criteria for determining cultural age are established in his works, and his students have overlooked this important issue.

We shall conclude our analysis here and keep the reader in suspense — we shall not reveal the content of the remaining four conversations. Please take our word for it that they provide no less rich and wholesome food for thought, both for specialists in the fields of psychology and pedagogy and for the general public who have reached cultural maturity.

On the whole, the book under review makes a strong impression. Its initial focus on practising teachers has not diminished its conceptual rigour or reduced its depth. Together with E. Yu. Zavershneva's recently published monograph "The Vygotsky Case" (Moscow: Kanon+, 2026), "Dialogues" outlines a number of promising avenues for the development of cultural-historical psychology and re-formulates the tasks whose resolution Lev Semenovich Vygotsky bequeathed to us.

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Рецензия | Review

A book in dialogue: L.S. Vygotsky's ideas a century on¹

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Книга-диалог: Идеи Л.С. Выготского век спустя²

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Understanding L. S. Vygotsky's ideas requires not only immersion in the context of the era in which he lived and worked, but also engagement with the writings of his students, followers, and contemporary scholars of cultural-historical psychology. Professors N.N. Veresov (Monash University, Melbourne) and N.E. Veraksa (Faculty of Psychology, Moscow State University) have published a new book that brings all of this together in concentrated form. The book grew out of a series of conversations held as part of an educational outreach initiative of the International Academy of Preschool Education (MPADO) and posted on the organization's official website (MPADO, 2022–2024).

“*Dialogues about L. S. Vygotsky*” is not just another monograph offering yet another interpretation of the tenets of cultural-historical psychology. The title emphasizes the book's distinctive genre: before the reader

is a live dialogue in which the logic and key ideas of Vygotsky's psychological theory are revealed step by step. The authors offer a kind of guide to the territory of cultural-historical psychology, taking on the role of guides.

A dialogical presentation creates room for debate, mutual criticism, and polemic in addition to an exchange of views. It is a pity that the authors did not take advantage of this opportunity to make their dialogue fuller and more engaging. They appear deliberately to steer clear of controversy and avoid direct argument with one another. By contrast, the book contains ample polemic with other Vygotsky scholars, chiefly on N. N. Veresov's part.

The authors' aim was for readers, as witnesses to an intellectual conversation, gradually to join the process of reflection themselves. Vygotsky called this “cooperation”; today, the term “jointly distributed activity” is

¹ Veraksa N.E., Veresov N.N. (2025). *Dialogs on L.S. Vygotsky*. Moscow: Moscow University Publ.

² Веракса Н.Е., Вересов Н.Н. (2025). *Диалоги о Л.С. Выготском*. М.: Изд-во Московского университета.

widely used (Rubtsov, 2024). According to Vygotsky, all higher mental functions arise and develop through cooperation, so that open dialogue creates the most favorable conditions for learning — the kind of learning that leads development. At the same time, highly complex theoretical ideas in cultural-historical psychology become more accessible without losing their depth. It is no accident that, in the foreword (Yu.P. Zinchenko), the book is described as “a propaedeutic to the cultural-historical approach” (p. 6).

The book under review comprises eight conversations on the key propositions and concepts of L.S. Vygotsky's cultural-historical theory and on their possible applications in educational practice. A separate strand of the dialogue concerns contemporary preschool education. The authors address the theory's fundamental concepts — development, consciousness, the social situation of development, the zone of proximal development, the ideal form, *perezhivanie*, and higher mental functions — and clearly demonstrate their methodological and practical significance for contemporary psychological science and practice. N.E. Veraksa repeatedly brings the discussion back to preschool education and to educational practice more broadly.

The first conversation, “The Cultural-Historical Conception of L. S. Vygotsky and Contemporary Preschool Education”, establishes the book's overall framework. N.N. Veresov notes that there is still no shared understanding of consciousness, while the meaning of the term “development” is gradually being diluted. He insists that Vygotsky's cultural-historical psychology is a theory of the development of human consciousness, understood as a system of higher mental functions.

The conversations also examine such concepts as sign, cultural forms of behavior, maturation, play, psychological age, and the child's relationship with the social environment. When the discussion turns to the practical design of the educational process, N.E. Veraksa draws particular attention to the concept of *perezhivanie*. A child does not simply “reflect” external influences like a mirror; those influences are refracted through the child's own *perezhivanie*. This helps explain why essentially the same situation can affect different children in very different ways.

The second conversation, “The Concept of Ideal and Present Forms and the Process of Development”, explores a central proposition of cultural-historical theory: the social environment is not merely a factor in a child's cultural development, but its source. Development unfolds through interaction between the present form already embodied in the child and the ideal form available in culture. The social environment is therefore not an external backdrop, but the actual space in

which higher mental functions take shape. “We are coming to understand the depth of this idea more and more clearly. This is especially true in the contemporary world, where the social environment is becoming digital and we can see how it affects children's development: development follows different trajectories, yet remains governed by the same laws”, N.N. Veresov concludes (p. 29).

The third conversation is devoted to one of the most important concepts in cultural-historical psychology: the zone of proximal development. The speakers show how learning, play, and creativity can function as forms of development. The zone of proximal development is presented as a space of developmental possibilities that arises through cooperation with an adult and with other children. N.N. Veresov defines it as “the distance between the actual level of development and the possible (potential) level of development” (p. 56).

The speakers examine in detail the relationship between play and learning activity and Vygotsky's principled distinction between them. School-based forms of instruction must not be transplanted into the preschool years. Children must be allowed to develop fully through play if imagination — the central neoformation of the preschool years — is to emerge. N.N. Veresov argues for a gradual transition from play to learning, with “strictly instructional tasks wrapped in play narratives” in the first grade, as envisaged in Davydov's system of developmental instruction (p. 67).

The fourth conversation addresses the laws of psychological development identified by Vygotsky. These include, on the one hand, four laws governing the genesis of higher mental functions, subsumed under the “general genetic law of cultural development”, and, on the other, the laws governing the formation of “psychological systems”: the relations among mental functions, their differentiation and synthesis, the hierarchy of functions, and related processes, as N.N. Veresov explains (p. 76). The systemic organization of mental functions becomes a central object of inquiry in Vygotsky's late work.

The fifth conversation, “Vygotsky's Dialectics”, seeks to reveal the methodological core of his theory. The authors argue that dialectics should be treated as a method for analyzing the process of development, not as a universal scheme applied to a particular object of psychology. That claim is difficult to dispute. Yet much of the conversation is devoted precisely to *examples of applying* dialectics to various psychological questions in Vygotsky's work. The reader learns relatively little about the dialectical *development* of his theory “from the abstract to the concrete”, or about the *development* of the

child's consciousness. There are also some questionable excursions into philosophy, such as the claim that "Spinoza took the concept of matter and distinguished two attributes within it — mind and brain" (N.E. Veraksa, p. 97). The conversation on dialectics is perhaps the least successful in the book.

The sixth conversation, "The Psychology of Creativity in the Work of L.S. Vygotsky", examines the problem of creativity from a cultural-historical perspective. Creativity is understood as a movement from indeterminacy to structure, from conception to realization, and from an initially external cultural meaning to personal meaning. For Vygotsky, what makes an activity creative is not the materials or tools it employs, but the meaning that transcends the immediate action. The development of a child's creative abilities therefore cannot be reduced to a set of activity-based exercises. It requires the child's participation in culture, where the meanings and values accumulated by humanity "become the individual's own personal meanings" (N.N. Veresov, p. 118).

The seventh conversation, "Dialectics and the Study of Child Development", returns to the methodological foundations of cultural-historical psychology. The speakers consider why teachers need dialectics. The discussion centers on contradiction as a source of development. Various factors may accelerate, slow, or alter the trajectory of development, but they do not explain its internal dynamics or logic. To understand child development, one must examine the interaction between its two lines — the natural and the cultural — and recognize the social environment as the source from which specifically human forms of behavior emerge. Particular attention is therefore given to the concept of the social situation of development.

The eighth conversation, "Consciousness: Cultural or Natural?", returns to the question posed at the beginning of the book: what is consciousness from a cultural-historical perspective? Answering it requires attention to the shift in our understanding of Vygotsky's work over the past quarter-century, brought about by the publication of a large body of archival manuscripts, lec-

ture transcripts, and notebooks. "These works revealed a new Vygotsky to us. An entirely new one", N.N. Veresov acknowledges — a Vygotsky far more profound than the one scholars had known before and thought they understood so well. Vygotsky's principal achievement, he argues, was that "he posed and answered the question of what human consciousness is... It arises when a person begins to participate in cultural practices, in joint activity, in practices that involve the use of artificial means" (p. 144).

In discussing L.S. Vygotsky's work, the authors focus mainly on writings and ideas from his late period. This emphasis is justified: in the late texts, Vygotsky's theoretical thought reaches its fullest maturity — its acme. It is regrettable, however, that the book gives little attention to his work and discoveries of the 1920s, apart from the idea of ingrowing, and therefore says little about the roots of his theory. There is no mention of the "instrumental method" or the "double-stimulation method", while the 1928 lectures on developmental psychology are unexpectedly described as "one of the last lecture courses Vygotsky delivered" (N.N. Veresov, p. 86). The book does not, of course, claim to provide a comprehensive account of Vygotsky's ideas.

Some conversations, especially the fourth and fifth, occasionally drift into monologues by N.N. Veresov, while N.E. Veraksa's contributions are largely confined to clarification and support. The other dialogues, although less markedly, also suffer from a lack of intellectual polyphony. Highly complex, multifaceted, and contested questions in Vygotsky's legacy are viewed through a single scholarly lens — admittedly a powerful one. Even so, the authors undoubtedly achieve their chief aim: to demonstrate the continuing relevance of L.S. Vygotsky's legacy for contemporary science and educational practice.

In our view, the publication of this book marks an important event in cultural-historical psychology and offers further compelling evidence that Vygotsky's ideas will continue to live and develop in the cultural soil from which they emerged.

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MEMORABLE DATES

ПАМЯТНЫЕ ДАТЫ

130th anniversary of Jean Piaget
К 130-летию Жана Пиаже

Научная статья | Original paper

Correspondence between A.R. Luria and J. Piaget 1930–1966 years

Abstract

The letters exchanged between the renowned 20th-century psychologists Aleksander Luria and Jean Piaget reveal the intricate and sensitive process of fostering collaboration between scholars from two distinct and frequently opposing social “camps”. The unseen participant (and probably the initiator) of these exchanges was Lev Vygotsky. This correspondence is being published for the first time. Notes by A.D. Maidansky and E.Yu. Zavershneva.

Keywords: psychology congresses, developmental psychology, pedology, egocentric speech, Vygotsky, International Bureau of Education

For citation: Correspondence between A.R. Luria and J. Piaget 1930–1966 years. (2026). *Cultural-Historical Psychology*, 22(3), 95–99. <https://doi.org/10.17759/chp.2026220311>

Переписка А.Р. Лурии с Ж. Пиаже 1930–1966 годов

Резюме

Письма, которыми обменивались два выдающихся психолога XX века, А.Р. Лурия и Ж. Пиаже, раскрывают детали непростой, деликатной работы по организации взаимодействия между учеными двух разных, зачастую враждующих, общественных «лагерей». Невидимым участником (а вероятно, и инициатором) этих контактов был Л.С. Выготский. Переписка публикуется впервые. Примечания — А.Д. Майданского и Е.Ю. Завершневой.

Ключевые слова: психологические конгрессы, психология развития, педология, эгоцентрическая речь, Выготский, Международное бюро просвещения

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International Bureau of Education,
Geneva, 12 February 1930
To Mr. Alexander Luria,
54/5 Arbat Street, Moscow

Dear Luria,

Thank you for your latest letter. I am concerned, however, that you have not received my reply to your previous letters¹; I wrote to you as far back as 1929 to thank you for your kind messages and to say that I have kept unforgettable memories of our conversations at Yale.

Of course, I would be happy to write a preface to the translation of my first two books. Please let me know the exact date by which I should send it. Incidentally, have you published anything on egocentric speech as a precursor to adult inner speech? I would like to quote you in an article I am preparing².

Regarding the Association of Child Psychologists, I agree with your suggestions, but I am waiting for Meyerson to finish his work before taking any action³. He must have written to you – I gave him your name [as a participant] from Russia.

I was very interested to hear about your impressions of America. The most valuable encouragement I have received to date was what you told me there about my own research.

Please accept, dear Luria, the expression of my sincere and deep friendship.

Jean Piaget

The Jean-Jacques Rousseau Institute
University of Geneva
Institute of Educational Sciences
Geneva, 18 September 1930
To Mr. Alexander Luria, Moscow

Dear friend,

Here at last is the foreword to the edition⁴; please accept my apologies for the delay. I would like to thank you once again from the bottom of my heart for everything you have done for this project.

Regarding volumes 3 and 4, I will leave the decision entirely up to you⁵. I believe I have already replied to *Staatsverlag*⁶, but if not, I will write again. Please apologise on my behalf to the person who wrote to me (I cannot recall who it was).

Congratulations on the work you have done in the Caucasus⁷. I look forward to seeing the results.

Rest assured of my devotion, dear friend.

Jean Piaget

Moscow, 2 November 1930

Dear Piaget,

I am writing to you this time in my capacity as Chairman of the International Bureau of Education⁸.

I would like to ask you the following question: we would like to publish a book presenting the principles of pedology, or child psychology, in France and Switzerland, in which the main tenets of French-speaking child psychologists would be clearly expressed.

¹ International mail in the Soviet Union often went missing in transit. Luria's correspondence with Kurt Levin was affected by this issue (see Ratcliff, van der Veer, 2025, p. 5).

² By that time, Lev Vygotsky's first article on the subject had already been published (Vygotsky, 1929), as had a German translation (Wygotski, 1929).

³ No information about Luria's proposals has survived. Ignace Meyerson (1888–1983) was the editor of the *Journal de psychologie normale et pathologique*. After the congress, Piaget wrote to Meyerson to say that he had met “an amazing guy (un type épatant)” who had a “large number of works of first quality” in progress (cited in Ratcliff, van der Veer, 2025, p. 5). Luria was only 27 at the time and Piaget was 33.

⁴ This is the author's preface to the Russian translation of *Language and Thought in the Child* (Piaget, 1932).

⁵ It appears that translations of Piaget's next two books were also planned: *The Child's Conception of the World* (1926) and *Physical Causality in the Child* (1927).

⁶ *Staatsverlag* (the German word for “state publishing house”) refers to OGIZ, which published Piaget's book *Language and Thought in the Child* (Piaget, 1932).

⁷ It is not known what was the work is being referred to. In the summer of 1930, Luria visited the resort town of Teberda in the North Caucasus, where he met Lana Lipchina, a biomedical scientist; three years later, they married. It is possible that two Moscow-based scientists took part in the field research; their daughter Elena recounts her mother's memories of conversations “in the evenings by the campfire” (Luria, 1994, p. 78).

⁸ In 1929, Piaget was appointed director of the International Bureau of Education (Bureau International d'Education), which was subsequently integrated into UNESCO.

Would you be so kind as to recommend such a book to us? It could be a work that has already been published, or we could commission a new work from an author you suggest. I look forward to receiving your reply to this matter as soon as possible.

With best wishes to you and your family!

Yours, A. Luria

Geneva, 11 April 1932
To Mr. Alexander Luria
5 Serebryany Lane, Flat 1. Moscow

Dear Luria,

On returning from my trip, I found your letter of 15 March and was very pleased because, with the expedition now postponed until 1933, I think I can accept your kind invitation.

First of all, I must apologise for not replying to your first letter. The reason is that not only am I always late (as you, unfortunately, know!), but also, and more importantly, your invitation has put me in a very difficult position. On the one hand, I was very keen to make this trip to Russian Turkestan, given all the psychological discoveries it promises. But, on the other hand, I have a ten-month-old son, and I am working on a major book about the first two years of a child's life, so there could be no question of abandoning my principal "*Versuchsperson*" [German for test subject] at such a crucial moment.

I was therefore greatly relieved to learn that the expedition has been postponed until 1933⁹. This time I am happy to accept. I am particularly looking forward to spending a few days in Moscow and meeting your fellow psychologists and educators. I would also be grateful for the opportunity to establish technical contacts between the International Bureau of Education and the departments of the People's Commissariat for Education. If you have any advice on this matter, please do share it with me.

For my part, I shall consider the research topics that could be explored during our expedition and shall write to you about them as soon as I have any ideas.

Once again, dear Luria, I thank you most sincerely for honouring me with an invitation to this expedition. Please accept my sincere friendship.

Jean Piaget

Dear Piaget,

A year ago, you kindly agreed to send us a paper for a collection dedicated to the memory of Vygotsky.

We are now ready to publish the collection and look forward to receiving your paper by 1–15 January, if possible. If it could address general issues of child development, that would be preferable. There are, of course, no restrictions on length. The entire collection will be titled *Problems of Development and Dissolution of Mind*¹⁰.

With best wishes to you and your colleagues!

Yours sincerely,

A. Luria

Prof. Alexander R. Luria
13 Frunze Street,
Moscow, USSR
7 November 1935

14 April 1936

Dear Piaget,

A few months ago, I wrote to inform you that we were preparing a commemorative collection in honour of Vygotsky and that we would very much like to include one of your works in it.

⁹ Luria's second expedition to Central Asia took place in the summer of 1932 and was joined by Kurt Koffka. Apparently, a third expedition was planned for the following year, in which Piaget was to participate.

¹⁰ Information about the unfortunate fate of this collection can be found in the Afterword.

Since then, I have received no news from you.

Many psychologists (Gesell, Boitendijk, Gelb, Bühler, Koffka, Lewin) have already sent us their work for the collection, and we are eagerly awaiting yours. Any article you could provide, preferably devoted to the theoretical issues of children's developmental thinking and behaviour, would be particularly highly valued!

Could I receive your contribution sometime in April or May?

I send you my warmest regards.

Yours sincerely, Luria

Prof. Alexander R. Luria
13 Frunze Street
Moscow, USSR

Geneva, 20 April 1936

Prof. Alexander R. Luria,
13 Frunze Street,
Moscow

Dear Luria,

Thank you for your kind letter. I will send you some pages for the Vygotsky memorial book as soon as possible. However, I am very busy at the moment and would ask you to be patient for a little while longer.

Please forgive me for the delay, and accept my best wishes, dear friend.

J. Piaget
Director

9 October 1964
To Mr A.R. Luria

Dear Luria,

Upon returning from my trip, I found your reply, for which I thank you. I apologise for the delay.

I have noted your comments regarding the programme for the symposium on intelligence but it is too early to discuss this as I need to secure sufficient funding first. As you requested, it goes without saying that this symposium will take place after the congress in Moscow.

Regarding your kind enquiries about my participation in the congress, I discussed this with Leontiev over the summer. He will undoubtedly have informed you that I would be delighted to deliver one of the three evening lectures on the subject of "Psychology and Interdisciplinary Relations". In fact, UNESCO has commissioned me to prepare a general report on interdisciplinary relations between the humanities and the natural sciences, among other things. I believe this issue is relevant to psychology, and drawing the congress's attention to it would be a significant achievement.

Furthermore, I am willing to participate in one of the symposia you have planned¹¹, provided it focuses on intelligence or developmental psychology.

Thank you, and please accept the assurance of my sincere friendship and devotion, dear Luria.

J. Piaget

15 March 1965
Mr A.R. Luria,
13 Frunze Street, Moscow

You sent me a very kind letter regarding the symposium on intelligence that the World Psychiatric Association is planning to hold under my chairmanship in 1966, following your congress¹².

You also asked me what I would like to talk about at the Moscow Congress. I replied immediately, but have not yet received a response from you. Perhaps my letter did not reach you, so I am writing again.

¹¹ This refers to one of the breakout sessions at the Moscow Congress.

¹² The World Psychiatric Association Congress is taking place in Madrid from 5 to 11 September 1966. Piaget will be unable to attend.

UNESCO is preparing a major report on contemporary trends in the humanities and social sciences; I have been commissioned to write three chapters for this report, including one on interdisciplinary relations and another on the place of the humanities within the system of sciences (in particular, biology and mathematics). In order to generate a flow of ideas and draw attention to interdisciplinary relations, which I believe are also of great importance for the future of psychology, I would like to engage as many psychologists as possible at your congress in this topic.

The International Congress of Sociology, which is to be held in late summer 1966, has already invited me to deliver the opening speech on interdisciplinary relations, with a particular focus on the general mechanisms of interest to sociology in relation to other sciences. Furthermore, I have been asked to chair a working group on the same topic at this congress, but, as you are aware, I am a psychologist, not a sociologist, so I would be particularly interested in discussing these issues at the congress in Moscow.

Given the large number of symposia you are holding, would it be possible to organise an evening conference on this topic, such as the mechanisms common to psychology and the natural and social sciences, to avoid overloading your programme? Otherwise, a symposium could be considered.

If neither of these topics is suitable, please assign me to a symposium that is connected with intelligence in some way, and I will prepare a short paper along those lines.

I am making these proposals primarily to familiarise myself with the ideas of Soviet psychologists as thoroughly as possible and to prepare three chapters for the UNESCO report. I would very much like to identify all possible trends, not just those with which I am familiar. Therefore, with the aim of gaining far more than I can offer, I am considering an evening conference, as this is often the best way to learn what is difficult to grasp simply by reading countless publications, by getting behind the scenes and having conversations.

I apologise, dear Luria, for making such specific proposals to you; please tell me frankly what you think of this, and rest assured of my long-standing and sincere friendship.

J. Piaget

P.S. I have sent a long article on thought and action to Mr Kashin, the Deputy Minister¹³, who asked me to write it for his journal. When writing it, I kept in mind both readers who are psychologists and those who are educators.

4 November 1966
Prof. A.R. Luria
13 Frunze Street. Moscow

Dear Luria!

I am late in replying and offer my apologies: I have been away and very busy. I shall write these few pages within the next two or three days.

Once again, please accept my apologies and best regards,

J. Piaget

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¹³ Mikhail Petrovich Kashin (1912–1988) was a Soviet scholar and educator, as well as Deputy Minister of Education of the Russian Federative Republic. He was the editor-in-chief of the journal *Narodnoe Obrazovanie*.

Научная статья | Original paper

Afterword to the Correspondence between Luria and Piaget

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Abstract

The correspondence between Artur Luria and Jean Piaget began in 1929, following their meeting at the 9th International Congress of Psychology in New Haven. This article examines the history of their academic and personal relationship, their joint projects involving Lev Vygotsky which never came to fruition, and the history of the English translation of “Thinking and Speech”, with a foreword by Piaget.

Keywords: psychology congresses, developmental psychology, pedology, egocentric speech, Vygotsky, International Bureau of Education

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Послесловие к переписке Лурии и Пиаже

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Резюме

Переписка между А.Р. Лурией и Ж. Пиаже началась в 1929 году после их знакомства на IX Международном конгрессе по психологии в Нью-Хейвене. В статье освещается история их научных и дружеских контактов, несостоявшихся совместных проектов с участием Л.С. Выготского, а также история перевода «Мышления и речи» на английский язык, с предисловием Пиаже.

Ключевые слова: психологические конгрессы, психология развития, педология, эгоцентрическая речь, Выготский, Международное бюро просвещения

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This issue of the journal *Cultural and Historical Psychology* contains correspondence between Aleksander Romanovich Luria and Jean Piaget, which is being published here for the first time. René van der Veer (Leiden University, Netherlands) kindly provided photocopies of the letters, for which the editorial board would like to express its sincere gratitude. The originals are held in the Luria family archive (custodian: E.G. Radkovskaya), the UNESCO archives, and the archives of the Jean-Jacques Rousseau Institute in Geneva.

Luria wrote his letters in German, while Piaget wrote in French. The letters were translated into Russian by A.D. Maidansky.

We learned of the existence of this correspondence from a recent article by M.J. Ratcliff and R. van der Veer, which attempts to partially reconstruct the collaboration between Luria and Piaget (Ratcliff, van der Veer, 2025).

The correspondence is divided into two periods linked to major international congresses at which Piaget and Luria met in person.

They first met at the 9th International Congress of Psychology, which was held at Yale University (New Haven, September 1929)¹. With over a thousand delegates in attendance, including a veritable constellation of eminent psychologists², this congress is considered one of the most prestigious in the history of psychology. Soviet Russia was represented by a delegation comprising V.M. Borovsky, S.G. Gellerstein, I.N. Shpilrein and A.R. Luria. Once they had arrived in America, they were joined by Academician I.P. Pavlov, who delivered a lecture that was met with a standing ovation³.

Unlike Piaget, who had published four books and numerous articles and had visited universities and research centres across Europe, Luria was virtually unknown in the West at that time.

At the congress, Luria presented two papers: one on the combined motor method, and another co-authored with Vygotsky (who was not present at the congress) summarising their joint research into the function and fate of egocentric speech (Vygotsky, Luria, 1930)⁴. This study used a modified version of Piaget's method and provided compelling arguments against his hypothesis that egocentric speech disappears during child development. Vygotsky and Luria demonstrated that egocentric speech constitutes an intermediate developmental stage

between social external speech and individual internal speech. During cultural development, egocentric speech transforms into inner speech, becoming the primary means of organising the child's behaviour.

Luria's second paper and Piaget's paper were presented on 4 September during the morning session in different lecture theatres, so it is unlikely that they could have heard each other's presentations. Luria may have had to repeat his paper during a walk. Piaget was interested in Vygotsky and Luria's research; however, judging by his subsequent publications, he regarded their objections as merely an amendment to his own position, requiring no major changes to his theory.

In his paper, Piaget argued that morality, like logical thinking, emerges and develops through *cooperation*. Logic and morality replace the "spontaneous" egocentric mindset and behaviour, in which there is as yet no distinction between the social and the individual (Piaget, 1930).

Vygotsky and Luria regarded a child's cooperation with adults as the source of *all higher* psychological functions and cultural forms of behaviour. They found brilliant experimental evidence for this idea in Piaget's works.

Following their meeting in America, Luria and Piaget struck up a friendship that had the potential to develop into a fruitful international collaboration. In 1932, Luria arranged for two of Piaget's books, *Language and Thought in the Child* (1923) and *Judgement and Reasoning in the Child* (1924), to be published together in a single volume.

Vygotsky and Piaget himself wrote two forewords to the Russian edition. Piaget's original handwritten preface, dated 18 September 1930, has been preserved. In the opening lines, he expresses his gratitude to "my friend Alexander Luria" for preparing the Russian translation and, in particular, for the research that supplemented and corrected the work carried out in Geneva. The editor of the printed edition replaced Luria's name with the anonymous "Soviet psychologists"⁵. As for Vygotsky's preface, it was soon cut out of library copies (at least three copies held at the Russian State Library have suffered this fate).

As planned, Luria and Vygotsky were to join the editorial board of the new journal *L'Enfance* (Childhood). Luria repeatedly invited Piaget to join him on expedi-

¹ See Luria's review article on the New Haven Congress (Luria, 1930) and the account of his journey to the Congress (Yasnitsky, 2012).

² W. Köhler, K. Koffka, K. Lewin, O. Lipmann, W. Stern, K. Bühler and Ch. Bühler, E. Claparède, A. Piéron, J. Piaget, C. Spearman, E. Thorndike, and others. J.M. Cattell chaired the organising committee. The congress proceedings were published a year later (Ninth International Congress, 1930).

³ "Pavlov spoke in Russian... with great enthusiasm, and the empathizing audience broke into enthusiastic applause without waiting for the translation. When the translation came, the applauded passage proved to be a description of some apparatus used in Pavlov's laboratory!" (Duncan, 1980, p. 3).

⁴ See the publication of this report with commentary: Vygotsky, Luria, 2019; Zavershneva, van der Veer, 2019.

⁵ In addition to Vygotsky and Luria, Aleksei Leontiev and Rosa Levina also played an active role in research into egocentric speech. The latter left behind memoirs describing the course of the experiments (Levina, 1968). She kept records and protocols of a series of experiments conducted in 1931. Although Levina was still a student at the time, her name appears alongside the "big three" in *Thinking and Speech*.

tions to “Russian Turkestan”, and in a letter dated 11 April 1932, Piaget accepted the invitation. However, these plans never came to fruition⁶.

Vygotsky died suddenly in June 1934. Then, Luria began work on a commemorative volume entitled *Problems of Development and Dissolution of Mind*, enlisting the help of a wide circle of leading international researchers, including Piaget. Unfortunately, the book was never published, and the fate of the submitted manuscripts remains unknown. Following the 4 July 1936 decree “On Pedological Deviations in the People’s Commissariat for Education System”, Luria switched his focus to neuropsychological research and ceased correspondence with his foreign colleagues, only resuming it with the onset of the Thaw.

By that time, many links between Soviet and foreign psychology had been lost. Luria and Piaget played a significant role in rebuilding these links.

In April 1955, Luria and Piaget met in Moscow. A delegation comprising Piaget (in his capacity as president of the International Union of Psychological Science), Paul Fraisse, and René Zazzo visited Moscow and the Pavlov Institute near Leningrad. At an “epistemological discussion” at the Academy of Sciences, following a heated debate that switched to Russian, those present agreed that “Piaget is not an idealist”. Piaget mentioned this with a touch of humour, taking a dig at “certain Russian colleagues” who were well acquainted with foreign sources but rarely cited them (Piaget, 1956, p. 344).

In the summer of 1957, Piaget and Luria met again at the 15th International Congress of Psychology in Brussels. According to Luria’s letters home, he agreed there to the “translation and publication of Vygotsky” (Luria, 1994, p. 163). Among the participants at the congress was Eugenia Hanfmann, a close acquaintance of his who had been developing some of Vygotsky’s ideas in the field of pathopsychology⁷. Five years later, her and Gertrude Vakar’s translation of *Thinking and Speech* was published. The preface mentions that Professor Luria had requested the translation (Vygotsky, 1962, pp. XI–XII).

Despite Luria’s praise, the English translation of *Thinking and Speech* contained numerous simplifications and omissions (see Mecacci, Yasnitsky, 2011). Even the title was changed to *Thought and Language*. The translators were apparently unaware that, for Vygotsky, language is merely a form of speech development, and one that is linked to thinking.

Hanfmann sent the book to Piaget for review. “What an intelligent idea to send him the translation

and receive his critical comments”, Luria marvelled in a letter to Hanfmann. “I know of no other instance in the history of science where two eminent scholars, one of whom is still alive, have exchanged their views, separated by thirty years!” (quoted in Vygotskaya, Lifanova, 1996, p. 138).

Vygotsky was an unseen participant in the dialogues between Luria and Piaget from their very first meeting. However, Piaget admitted that he had not read Vygotsky’s works before opening *Thinking and Speech*. It is unclear why, given that half a dozen translations (including one into French) had been published in European journals even before the war.

There is also no certainty that he studied the second chapter of *Thinking and Speech* closely. In his “Commentaries”, Piaget explains the concepts of egocentrism and the decentration of thought in detail and with great conviction, but Vygotsky contested something quite different – the view of the “main pathway of child development”. He believed that this is not the socialisation of the egocentric child’s psyche, as Piaget thinks, but “individualisation based on the child’s internal sociality” (Vygotsky, 1934, p. 282).

Vygotsky urges us to view the child, from the very first seconds of his life, as one of the parties in an “interpsychological” system of relationships with the people around him. In contrast, Piaget supposes that “the social lies at the end of development” (Vygotsky, 1934, p. 44). Piaget’s point of reference is the individual, with his innate ego and sensorimotor functions. Marx termed such a theoretical stance a “Robinsonade”.

By shifting the point of reference from the ego to society, Vygotsky *decentered* traditional psychology in general and Piaget’s theory in particular. In the beginning was “We”! “I” is nothing other than an internalised “We”.

Piaget’s “Comments” overlooked this Copernican revolution in psychological science. Written in English, they were published as a brochure (Piaget, 1962) and included with every copy of Vygotsky’s book, undoubtedly boosting sales.

Luria and Piaget met again at the 18th International Congress of Psychology, held in Moscow from 4 to 11 August 1966. Luria chaired the programme committee, and Aleksei Leontiev was president of the congress.

It was a significant event, with 5000 participants and guests from 44 countries in attendance. Luria delivered a paper on the localisation of cortical functions, and Piaget, fulfilling a UNESCO assignment, gave an evening lecture on the interrelationships between psychology

⁶ Luria was forced to leave the Psychological Institute after a commission of the *Rabkrin* (the Commissariat of Workers’ and Peasants’ Inspection) deemed his expeditions of 1931–1932 to be “colonialist research based on racial theory and attempting to demonstrate the inferiority of the thinking of our peripheral ethnic groups” (Luria, 1994, p. 67).

⁷ E.M. Hanfmann (1905–1983) spent her childhood in Saint Petersburg and went on to study in Jena. She then moved to the United States, where she became an assistant to Kurt Koffka. She is renowned for her method of diagnosing schizophrenia (the Hanfmann–Kasanin test), which is based on the methodology of Vygotsky and Sakharov. Her husband, Jacob Kasanin (1897–1946), knew Vygotsky personally, corresponded with him and translated some of his works into English.

and other sciences. This lecture was published separately as a 40-page booklet (Piaget, 1966).

Approximately one and a half years prior to the Moscow Congress, M.P. Kashin, the editor-in-chief of the journal *Narodnoe Obrazovanie*, approached Piaget with a proposal to write an article on the connection between thinking and activity (this topic choice reveals Kashin to be an adherent of the “activity approach”). Piaget complied with the request, but the content of the article was too complex for a journal intended for a mass audience. This is probably why Kashin submitted the article to *Voprosy Psikhologii*, where it was published at the end of the year (see Piaget, 1965). A lengthy article on the Moscow Congress was published in the Supplement to *Narodnoe Obrazovanie*, containing a synopsis of Piaget’s presentation, “The Place of Psychology in the System of Sciences” (Bernstein, 1966, pp. 7–9).

Three of Piaget’s books were published in the Soviet Union, alongside the aforementioned booklet and a substantial monograph on his “genetic psychology” (see Flavell, 1963). The first volume of *Experimental Psychology*, edited by P. Fraisse and J. Piaget, was published in the year of the Congress; the final, fourth volume appeared in 1973. A.N. Leontiev wrote three prefaces and oversaw the editing of the translations. Luria did not participate in any of these publications.

The last surviving letter from Piaget to Luria was written three months after the Moscow Congress. Although there is no documentary evidence of this, the letter suggests that their joint scientific work continued thereafter.

The published correspondence allows us to conclude that, despite all the political and ideological conflicts of their era, Piaget and Luria succeeded in strengthening ties between the scientific communities of psychologists in the Western and Eastern blocs.

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The authors declare no conflict of interest.

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90th anniversary of A.A. Leontyev
К 90-летию А.А. Леонтьева

Научная статья | Original paper

Theoretical and applied psychology of communication

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Abstract

Context and relevance. The year 2026 marks the 90th anniversary of the birth of the renowned Russian psychologist, philologist, and educator Alexei Alekseevich Leontiev (1936-2004). In keeping with established scientific tradition, events dedicated to this anniversary celebrate the scientist's ideas through the lens of the current state of science and practice. Publications aimed at drawing attention to the scientist's legacy occupy a prominent place among these scientific events. This article discusses the collection of scientific papers "Psychology of Communication" (Moscow: Smysl, 2026), published for the anniversary and addressed to a wide range of readers in the humanities. **Objective** is to briefly introduce the works of A.A. Leontiev included in this collection, as well as to explore the rationale for collecting these works under one cover and presenting them as a coherent whole. **Hypothesis.** An analysis of A.A. Leontiev's scientific legacy in the field of communication studies provides grounds for considering the results of his research from various perspectives—linguistic, psychological, and pedagogical—as reflected in relevant publications. **Methods and materials.** The method used was a historical and methodological analysis of A.A. Leontiev's works based on the publications included in the publication under review. **Results.** The evolution of communication research is demonstrated, and the logic of the author's scientific research is traced, beginning with works in the field of psycholinguistics and ending with general publications on the psychology of communication, which suggest the possibility of applying an activity-based approach to communication processes. **Conclusions.** An analysis of A.A. Leontiev's research on communication issues demonstrates the development of an original, interdisciplinary approach to the study of communication.

Keywords: communication, communication psychology, communication and activity, psycholinguistics, pedagogical communication, art

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Теоретическая и прикладная психология общения

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Резюме

Контекст и актуальность. В 2026 году исполнилось 90 лет со дня рождения известного отечественного психолога, филолога и педагога Алексея Алексеевича Леонтьева (1936–2004). По сложившейся научной традиции, к юбилейной дате приурочены мероприятия, имеющие своей целью возвращение к идеям ученого сквозь призму актуального состояния науки и практики. Достойное место в общем ряду научных событий занимают публикации, нацеленные на привлечение внимания современных

специалистов к наследию ученого. В данной статье речь пойдет об изданном к юбилею сборнике научных трудов «Психология общения» (М.: Смысл. 2026), который адресован широкому кругу читателей гуманитарного профиля. **Целью** выступает краткое представление работ А.А. Леонтьева, вошедших в данный сборник, а также определение оснований, которые позволили собрать работы под одной обложкой и представить их как единое целое. **Гипотеза.** Анализ научного наследия А.А. Леонтьева, связанного с изучением проблем общения, позволяет рассматривать результаты выполненных им исследований с различных точек зрения — лингвистической, психологической, педагогической, что получило отражение в соответствующих публикациях. **Методы и материалы.** Методом выступил историко-методологический анализ работ А.А. Леонтьева по материалам публикаций, вошедших в рецензируемое издание. **Результаты.** Показано, как менялось содержание исследований по проблемам общения, прослежена логика научных изысканий автора, начиная от работ в области психолингвистики и заканчивая обобщающими публикациями по психологии общения, позволяющими говорить о возможности применения деятельностного подхода к процессам общения. **Выводы.** Анализ исследований А.А. Леонтьева по проблемам общения свидетельствует о создании им оригинального подхода к изучению общения, носящего междисциплинарный характер.

Ключевые слова: общение, психология общения, общение и деятельность, психолингвистика, педагогическое общение, искусство

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There is nothing more precious in the world than the bonds that unite people.
A. de Saint-Exupéry. "Wind, Sand and Stars"

The most ancient art in human culture is the art of communication.
When there was no theater, no painting, no music, there was communication.
From it all the arts were born.
D. Granin. "Zubr"

Introduction

It's hard for the younger generation of psychologists to imagine that just a few decades ago, books on the psychology of communication were practically nonexistent, save for a small number of popular publications. This was especially noticeable against the backdrop of the unflagging interest of both professional psychologists and ordinary people in the mysteries of the human soul, and perhaps most importantly in the issues of human communication and the secrets of mutual understanding. What F.I. Tyutchev said in the first half of the 19th century, and in our time of almost limitless communication opportunities — albeit purely technical ones — still excites both the experienced elder and the young man entering adulthood:

How can a heart expression find?
How should another know your mind?
Will he discern what quickens you?
A thought once uttered is untrue.

In recent years, the situation has changed, posing an equally difficult question for the reader: which publication should I choose? It would be naive to expect that there is a book (or books) that contains answers (and

along with them, advice) to the questions that arise in every sensible person faced with the need to "learn to communicate". Moreover, psychological science concerns an area of human existence in which there are no ready-made recipes — people must seek them out themselves, make mistakes and then seek them out again, learn from their own and others' mistakes. Therefore, it is understandable that they are in dire need of guidance based not so much on common sense as on scientific data. W. James drew attention to this peculiarity of psychology in his book, "Conversations with Teachers on Psychology". Addressing American educators, he said: "... you are deeply, very deeply mistaken if you think that from psychology, that is, from the science of the laws of mental life, it is possible to derive specific programs, plans, or methods of teaching directly for school use. *Psychology is a science, and teaching is an art*; and science never directly produces art" (italics added — M.S.) (James, 1998, p. 17). And then, W. James formulates a general proposition equally applicable to all areas of social practice: "Science merely indicates the limits within which the rules of art are applicable, and the laws which those practicing this art must not transgress. How to proceed in each individual case without going beyond these limits is entirely left to the individual's discretion" (James, 1998, pp. 17–18).

If we examine the issues of communication psychology through the prism of the role assigned to scientific psychology by James, we cannot help but acknowledge that the blurring of permissible boundaries remains a problem felt by those who, quite rightly, rely on the assistance of psychology and psychologists.

The book discussed below contains a considerable amount of useful and reliable general information. Published under the editorship of D.A. Leontiev in the year of the 90th anniversary of the birth of Alexei Alekseevich Leontiev (1936-2004), renowned for his work in philology, psychology, pedagogy, and related fields, this book aims to introduce one aspect of his scientific legacy.

“Psychology of Communication” brings together A.A. Leontiev’s scientific works under one cover. As its title suggests, they are united by the common theme of communication, and each work deserves special attention. While all the works are devoted to a single problem, the issues raised are so diverse that there is no doubt about the book’s potential for a wide range of interested readers. Some sections of the book, such as those dealing with pedagogical communication, are applied in nature, which, however, does not mean they are insufficiently reliable.

At the same time, it should be emphasized that, with the progressive development of practical psychology, communication issues are taking on a new meaning, making a return to theoretical sources not only desirable but absolutely necessary. Without proper scientific reflection, psychological practices (techniques and technologies) that promise help risk turning into their opposite.

Written in academic language, this publication is intended for readers prepared not for a light intellectual stroll through a textbook, but for the serious, demanding work of familiarizing themselves with the obtained scientific data, which is often controversial. However, although classified as an educational publication, its content, replete with references to fundamental works in psychology and philosophy, can without exaggeration be considered scholarly.

Textbook on the psychology of communication

The main focus of the collection under review is A.A. Leontiev’s work “Psychology of Communication,” which gives the book its title.

This is the sixth edition; the first dates back to 1974: it was published by Tartu State University (Department of Logic and Psychology) as a textbook for psychology students. Even by today’s standards, the print run is modest — only 750 copies. A.A. Leontiev specified that the textbook was a course of lectures given to students

at Tartu State University in the fall of 1973. The book contains not only theoretical but also empirical material, as well as a summary of practical experience in applied areas of communication psychology.

There were significantly fewer psychologists at the time, and even fewer studying communication, so there was little hope of a readership boom. However, the reality exceeded expectations. In softcover form, with the black-and-white logo of the University of Tartu as the cover’s decorative element, and printed using a rotary press on poor-quality paper, this small edition quickly became a rarity.

As stated in the “Preface” to the second edition, “this was the first monograph in Russian on the psychology of communication” (Leontiev, 2026, p. 6).

A year later, in 1975, A.A. Leontiev defended his doctoral dissertation on “The Psychology of Verbal Communication”. According to D.A. Leontiev and A.A. Leontieva (Leontiev, Leontieva, 1997), many denied A.A. Leontiev, a doctor of philosophical sciences, the right to express opinions on psychological issues, which led A.A. Leontiev to defend his doctoral dissertation in psychology. In his doctoral dissertation, A.A. Leontiev wrote: “The ultimate goal of the work is to create a working concept of the psychology of communication that could form the basis for applied communication research” (Leontiev, 1975, p. 38). The phrase “working concept” hints at the prospects for future research.

Without attempting a comprehensive analysis of “The Psychology of Communication”, as it would be inappropriate for a review, we will limit ourselves to outlining some of its key points. This substantive presentation is preceded by a discussion of the place of the psychology of communication within the system of psychological knowledge. A.A. Leontiev draws attention to a scientific fact of great theoretical importance: works on the psychology of communication often either did not address psychological issues per se and approached communication from a linguistic perspective, or they substituted the psychology of communication with the psychology of relationships, social management, and so on. A.A. Leontiev defines the psychology of communication as “a section of general psychology whose subject is the psychological specificity of communication processes, considered from the perspective of the relationship between the individual and society” (Leontiev, 2026, p. 13).

He identifies the main psychological problems of communication:

- psychological functions of communication,
- the formation and functioning of mechanisms and means of communication,
- the relationship of communication with other aspects of human mental life.

Furthermore, the book lists those practical areas that require a clear definition of their psychological foundations: the psychology of the media, advertising, public

speaking, foreign language teaching, and others. This list could be continued.

Speech communication is at the center of all research in the psychology of communication. Because it is in verbal communication that the general psychological patterns of communication manifest themselves in their most characteristic, naked, and accessible form for research, they were chosen by the author as the primary subject of analysis. The author's previous research in psycholinguistics contributed greatly to the emergence of the psychology of verbal communication as a distinct field. It is worth recalling that A.A. Leontiev is rightfully considered the founder of psycholinguistics in our country. His dissertation on "Theoretical Problems of Psycholinguistic Modeling of Speech Activity" for the degree of Doctor of Philology was defended in 1968 (Leontiev, 1968). Moreover, already in his doctoral dissertation, A.A. Leontiev interpreted the theory of speech activity "as part of the general science of man" (Leontiev, 1968, p. 29).

Reading a book on the psychology of communication written half a century ago inevitably prompts reflection on the changes that have occurred in science, on "what has become of us," and whether it is possible to speak of a significant enrichment of scientific knowledge. It must be acknowledged that while some problems posed by A.A. Leontiev have attracted the attention of researchers, most likely due to the changed social situation in science, which has turned its attention to practice — for example, the study of nonverbal communication — others, such as the pathology of communication, still await their theoretical substantiation. The appeal addressed to all psychologists engaged in the study of communication resonates like a scientific testament — a reminder that a "foremost professional duty" is "to navigate freely across the entire range of theoretical and experimental research on communication conducted both in our country and abroad" (Leontiev, 2026, p. 222). A.A. Leontiev himself embodied precisely this kind of reverent attitude toward Science — whether in psychology, linguistics, or pedagogy.

Can communication be considered an activity?

The publication "Activity and Communication" is substantively related to the work "Psychology of Communication". While in the book just reviewed, A.A. Leontiev writes of his affiliation with A.N. Leontiev's school of thought, the published article provides clear evidence of this. Its controversial nature is noteworthy: the author poses questions regarding the relationship between communication and activity, but, while offering his own perspective on the problem, does not exclude a different approach to its solution. The article "Activity and Communication" first

appeared in the journal "Voprosy Filosofii" (Leontiev, 1979), which speaks to another direction in A.A. Leontiev's scientific research and, at the same time, his desire to draw the attention of philosophers to psychological problems. However, those familiar with A.A. Leontiev's rich legacy have no doubt about the breadth and depth of his professional interests, which led to his interest in questions of methodology and the philosophy of science. Addressing the category of activity as something that transcends psychology and connects its conceptual system with that of other social sciences allows us to move from theoretical analysis to the level of concrete research — this is the essence of the category of activity in the general psychological theory of activity.

It can be assumed that A.A. Leontiev also found this article particularly significant: its clear structure and rigorous language subtly invite serious discussion, leaving no room for pseudo-scientific speculation. This explains our close attention to this publication. It was in this article that the question of types of communication was discussed and the problem of the subject of communication was posed. A.A. Leontiev distinguishes two main types of communication: object-oriented, that is, carried out in joint non-communicative activity, and the opposite, "pure" communication, not included in non-communicative activity. The second type can have two situations: socially oriented communication (for example, public speaking) and personally oriented communication.

Returning to the question posed at the beginning of the article: can communication be considered an activity? A.A. Leontiev gives the following answer: "Of course it can. Can it function not as an activity, but as one of its structural components within another activity? Yes, undoubtedly, and in this it is no different from other types of activity. Are there real grounds for denying the activity-based nature of communication? If there are, we do not find them in the works of critics of the idea of communication as an activity" (Leontiev, 2026, p. 245).

Published in *Voprosy Filosofii*, A.A. Leontiev's article was intended by the editors to initiate a discussion on the problems of methodology and the philosophy of scientific knowledge. Indeed, a little over six months later, B.F. Lomov published a response article. However, his presentation, although based on A.A. Leontiev's statement on the relationship between communication and activity, addressed more general issues of the categorical apparatus of psychology. He formulated the question differently: can psychology develop on the basis of a single category, or does it "develop on the basis of a system of categories" (Lomov, 1979, p. 34). At the end of the article, B.F. Lomov concludes: "The question of a system of categories is particularly acute. ... The categories of activity and communica-

tion do not yet fully reveal the social existence of the individual. It is necessary to consider such categories as behavior, lifestyle, needs, and a number of others” (Lomov, 1979, p. 47).

The discussion did not continue, which does not preclude the consideration of A.A. Leontiev’s article “Activity and Communication” as extending beyond the narrow confines of psychology and oriented toward the search for philosophical foundations of psychological knowledge, which, as the entire history of the development of psychological knowledge has convincingly demonstrated, can also be diverse.

On types of communication

The subsequent materials in A.A. Leontiev’s collection of works address specific studies of types of communication.

Even in his doctoral dissertation, A.A. Leontiev wrote about a “psychological model of speech influence” (Leontiev, 1975, p. 36), which forms the basis of research on the psychology of public speaking and the psychology of mass communication.

The section “Lecture Communication”, as the author himself writes, is an excerpt from a brochure for lecturers, “Lecture as Communication”. Materials on such topics are clearly practice-oriented, and readers will likely find advice relevant to their teaching work. For example, the recommendation to structure lecture communication in a way that embraces both identification and empathy is very helpful. Behind such recommendations, the author’s central idea of viewing a lecture primarily as communication is invisibly present. Two more articles — “Communication in Mass Media” and “Television Art through the Eyes of a Psychologist” — address issues of social communication. A.A. Leontiev’s defining principle in analyzing the language of mass communication is the determinacy of the linguistic characteristics of mass communication’s impact on its socio-psychological and psycholinguistic features. A.A. Leontiev devotes special attention to television as a unifying force: on the one hand, it serves as a mass medium, and on the other, as an art form.

Theater, music, painting, and literature are different forms of art that are associated with different aspects of the personality. According to A.A. Leontiev, the specificity of cinema lies in the fact that “it ensures the dynamics of meaning formation” (Leontiev, 2026, p. 343), its purpose being “to engage and compel participation in the process of artistic communication... not to remain... an internally alienated viewer” (Leontiev, 2026, p. 343). But is this true of television? The author emphasizes that television perception possesses a number of specific characteristics that complicate its competition with other art forms. This suggests an analysis of the state of per-

ception of contemporary cinema, which has undergone significant changes compared to both television art of 50 years ago and cinema. How should home theaters be categorized in this situation?

Artistic communication, or communication through art

The discussion of art does not end with television art. A.A. Leontiev examines the activity of artistic perception from the perspective of the psychology of communication, and “the only *objective* path to studying the psychological specificity of art is an analysis of the process of artistic communication” (italics added — M.S.) (Leontiev, 2026, p. 332). An essential condition of artistic communication, A.A. Leontiev notes, is that the artist communicates to the viewer, reader, or listener something that allows them “to rise above themselves, to receive more from participation in artistic communication than they had before. ... art is ... a means of developing ... the personality” (Leontiev, 2026, p. 328).

Like any communication, artistic communication uses certain means; In its developed form, it is mediated by quasi-objects that possess specific characteristics conditioned by the fact that they act as bearers of personal meaning: through artistic communication, the actualization and development of the personality is realized, primarily its motivational, emotional-volitional, and ethical aspects. A.A. Leontiev introduces the concept of quasi-objects of art, which he understands as those elements of artistic communication that carry an independent functional load: this can be a complete artistic message (Michelangelo’s David or Tchaikovsky’s First Concerto) or an aesthetically significant component of such a message. The differences between quasi-objects of various art forms consist in their different relationships with objects. And thus, A.A. Leontiev’s epistemological task of separating the objective from the quasi-objective becomes clear. Some quasi-objects exist only as objects, for example, architecture. Other quasi-objects are created within the framework of art and do not exist outside of it, for example, the unit of perception in cinema — the film image. The third type of quasi-object is one that is ideal even outside of art — this occurs in poetry, where its sensory material is linguistic elements already incorporated into cognition and communication. “The fundamental problem of art perception” according to A.A. Leontiev, “is not the nomenclature of its quasi-objects, but the patterns of their organization into an artistic whole” (Leontiev, 2026, p. 324). In relation to poetry, this allows us to speak not of the problem of “poetic language”, but of the problem of “poetic speech”. A.A. Leontiev writes not about the technique of art, but about the technique of art perception, since techniques themselves are not carriers of personal meanings.

Referring to L.S. Vygotsky's notion of art as a "social technique of feelings" A.A. Leontiev calls art "a kind of 'testing ground' where people learn to be human" (Leontiev, 2026, p. 335). The content of art is those social relations that "are not reflected in the frozen forms of language, in conceptual form" (Leontiev, 2026, p. 286), but are experienced as one's own, intimate, in the subjective psychological form of personal meaning (Leontiev, 2026, p. 287).

The perception of art is not a passive process, and the perceiver simultaneously creates it. Art can be dead if we do not know the psychological key to it, if we do not carry out the specific activity of communicating through art: "Like any communication, communication through art must be specifically taught" (Leontiev, 2026, p. 289). Not all works of art are intended for every reader, viewer, listener, etc.; some works possess varying degrees of difficulty, but A.A. Leontiev places high demands on true artistic expression. He writes: "But every truly significant work is significant in that it is potentially accessible to any reader, viewer, or listener, provided they have mastered the fundamentals of the language of a given art" (Leontiev, 2026, p. 303).

This understanding of art was already outlined in the 1973 article "Poetic Language as a Method of Communication through Art" (Leontiev, 1973), published in the journal "Questions of Literature" which allows us to see how holistic and comprehensive his study of communication was throughout the various periods of A.A. Leontiev's scholarly work.

School atmosphere

Perhaps the main application of the general theory of communication has been the study of pedagogical communication. While A.A. Leontiev's book "Psychology of Communication" has been reprinted numerous times, the small publication "Pedagogical Communication" has been less fortunate in this regard. The first edition was published in 1979: the brochure was published in the popular Soviet-era series "Pedagogy and Psychology" by Znanie Publishing House. A second, revised edition was published almost 20 years later, and an expanded interview given by A.A. Leontiev to M.K. Kabardov was published in 1997. In this form, "Pedagogical Communication" is included in the book under review.

Despite the widespread use of the term "pedagogical communication", A.A. Leontiev, in order to prevent misinterpretations, specifically defines it: "Pedagogical communication is the professional communication between a teacher and students, either in class or outside of it (in the learning and education processes), which has specific pedagogical functions and is aimed (if complete and optimal) at creating a favorable psychologi-

cal climate, as well as at other types of psychological optimization of educational activities and relationships between the teacher and students and within the student body" (Leontiev, 2026, p. 351). A.A. Leontiev's commentary on the need for special training programs in pedagogical communication remains relevant. At the same time, Leontiev does not hide his skepticism about limiting pedagogical communication to technology: "... you cannot teach a person the techniques of pedagogical communication if they don't feel like a teacher, if they... don't love children, don't love the profession" (Leontiev, 2026, p. 471). It's hard to disagree with the author: "... the humaneness of communication with a child is the essence of pedagogical communication" (Leontiev, 2026, p. 469). This is precisely how true teachers, for whom school is a calling, not just a profession, understood the role of a teacher in school. The founder of the Moscow gymnasium in the Southwest, who worked at the school for almost 70 years in total, said: "The most important thing in school is the humanism of relationships" (Zavelsky, 2025, p. 52).

Another thing is that many pedagogical mistakes, which often stem not "from poverty but from the generosity of the soul," can and should be avoided. The Pygmalion effect described in the book still occurs in almost every classroom, and extensive teaching experience doesn't always help, if not eliminate, a biased attitude toward students, then at least acknowledge it. This is precisely the case when experience ceases to be a blessing, becomes a hindrance, and, having become the experience of prejudice, transforms from something positive into its opposite. This doesn't negate the importance of teachers having an understanding of pedagogical communication methods; rather, it further emphasizes their vital necessity.

The book contains a short paragraph, "How Our Word Will Resonate", which explains how A.A. Leontiev's professional interest in pedagogical communication emerged and subsequently took shape. It grew out of research in psycholinguistics in the 1960s: as an applied field, it is linked to teaching and education, and to the study of the relationship between the psychological characteristics of speech and its linguistic characteristics. A.A. Leontiev notes that psycholinguistic "microanalysis" of teachers' verbal communication is one area of research in pedagogical communication. However, emphasizing the relevance of addressing the mechanisms of verbal influence and developing subsequent practical recommendations, A.A. Leontiev concludes his book on pedagogical communication with the words: "... the purpose of teaching pedagogical communication is not in itself — it is not a panacea for all pedagogical woes" (Leontiev, 2026, p. 416). It is merely "a tool for creating an atmosphere of equality, fairness, and sensitivity that should reign in teachers' relationships with the class" (ibid.). And how fortunate those

children, regardless of their age and interest in particular school lessons, were to encounter such a teacher. A.A. Leontiev and Yu.V. Zavelsky both said the same thing: "... the character of any school is determined by its atmosphere, the air that fills the school building, the warmth and light it radiates — in a word, its spirit. This spirit, like the spirit of any home, is created by the people who live in it. It is expressed primarily by the relationships between them (both adults and children) in the rather complex educational process in which they participate. That is why relationships between people are the main asset of any school community, the most precious thing it has and which must be skillfully preserved" (Zavelsky, 2025, p. 53).

Interdisciplinary theory of human communication

The book concludes with an article by D.A. Leontiev and I.B. Khanina, "On the Problem of Communication in A.A. Leontiev's Works" (2011, № 1), timed to coincide with A.A. Leontiev's 75th birthday and published in the journal "Cultural-Historical Psychology" (Kulturno-Historical Psychology). The very title of the article, "On the Question...", hints at the incompleteness of their research.

Fifteen years ago, the authors wrote that A.A. Leontiev's communication theory in its entirety had not been the subject of a dedicated analysis. This journal publication, followed by others, was intended to fill this gap. Success in solving this problem is not measured by the number of publications and oral presentations on a given topic, but rather presupposes the active use of A.A. Leontiev's ideas as a scientific foundation for new research. However, the latter will be greatly facilitated by reflecting on the scientific path traversed by A.A. Leontiev and his students. It is from this perspective that D.A. Leontiev and I.B. Khanina's article can be viewed — as a prologue to future research in the field of communication psychology.

The authors quite rightly raise the question of the system-forming principle that, on the one hand, is present in all of A.A. Leontiev's works, and, on the other, allows them to be viewed not as separate, loosely related studies, but as a unified whole, reflecting the interests of a philologist, psychologist, and educator. This principle is represented by the "multilevel interdisciplinary theory of human communication" (Leontiev, 2026, p. 477), first presented in the book "Psychology of Communication" in 1974. Considering A.A. Leontiev's theory of communication as interdisciplinary, firstly, demonstrates the productivity of interdisciplinary research for psychology, as it meets contemporary demands of social practice,

and secondly, allows us to consider psychology as part of the humanities, using a specific example.

In their summary, D.A. Leontiev and I. B. Khanina also identify another possible direction for analyzing A.A. Leontiev's scientific legacy: studying his theory of communication through the prism of the ideas about the image of the world of A.N. Leontiev, E.Yu. Artemyeva, and S.D. Smirnov. This interweaving of A.A. Leontiev's scientific concepts into the fabric of diverse studies also serves as evidence of their interdisciplinary nature.

Conclusion

Who should read this book, why, and how?

Who? This is the question that arises when someone opens the book, familiarizes themselves with its contents, and flips through a few pages. Based on the overall impression of what they've read, it's quite difficult to define (limit) the circle of readers who will find information on the psychology of communication useful and necessary. One could take the opposite approach and set the task of finding specialists in psychology and related sciences who are not, to one degree or another, connected to the issue of communication. It must be acknowledged that the latter are few in number, since issues of communication psychology are reflected in various branches of psychology, and the relevant information precedes acquaintance with virtually any area of psychological knowledge, as well as psychological practice.

Why and how? The answers to these two questions directly depend on professional interests and inclinations, as well as current needs. It's possible that some will be satisfied with just reading individual chapters, while others, on the contrary, will be interested in searching for A.A. Leontiev's works on other topics.

A story about A.A. Leontiev's book would be incomplete if we stopped here and left out its author. Anyone who was fortunate enough to interact with Alexey Alexeevich Leontiev will surely remember his characteristically engaging manner, regardless of who he was talking to — a renowned scholar or a student, a close colleague or a casual listener. His smile, shining eyes, and calm, quiet speech set the tone for a confidential conversation, free from fuss and excessive politeness. This was a rare instance when the psychologist's work matched his actions: he never deviated from the "rules of communication" he wrote about in his books, yet he also taught us something very important, something that cannot always be expressed in words — humanity. And what kind of students we grown up to be depends only on us.

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*On the anniversary of Tatyana Vasilyevna Akhutina
К юбилею Татьяны Васильевны Ахутиной*



Photo from the archive of T.V. Akhutina

Developmental facilitation of the Speaking Human. Interview with Tatyana V. Akhutina

On August 15, 2026, Tatyana Vasilyevna Akhutina celebrated her anniversary — Doctor of Sciences (Psychology), Professor, Chief Researcher at the Laboratory of Neuropsychology of Lomonosov Moscow State University. For many years, Tatyana Vasilyevna has been a member of the editorial board of the journal *Cultural-Historical Psychology*. For us, this is a great honor and joy.

A student and continuer of A.R. Luria's ideas and legacy, a most brilliant representative of “peak” (L.S. Vygotsky) — cultural-historical — psychology, Tatyana Vasilyevna explores, from the heights of those “peaks”, the processes of the “deep-lying” of higher mental functions — at the neuropsychological level, by psycholinguistic methods. Thus, a new, non-classical “depth” psychology is born, one that coincides with “peak” psychology. And not only psychology — what is at issue is the entire system of supporting speech development in

ontogenesis as the key “line of life” of *Homo Loquens*, as defined by Noam Chomsky and Robert Berwick. And speaking, for any human being — whether in normality or in pathology — is always a *problem*, one whose solution requires not merely the mobilization of all mental “forces” but also the generation of new ones, ones not directly related to speech. Every person, not only a poet, *seeks* the living, meaningful word within the range of socially significant words, in order to be understood by others and intelligible to oneself (A.A. Potebnya wrote about this as well).

It is no accident that Tatyana Vasilyevna has left her mark in the most diverse scholarly and practical fields — from aphasiology to addressing the problems children encounter in schooling, including in the course of language acquisition. It is pointless to seek the sources of these “forces” in the neurodynamics of the brain — they

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are rooted in human culture — in the grand sphere of people's active “exchange of meanings”, which lives by the laws of its own historical life, lending human specificity even to neurodynamics itself. Even brain impairments merely block access to these sources, which is why one must seek roundabout paths to them, and as a result brain functions themselves are transformed. But this applies to the norm as well. Such is the general conclusion to be drawn from Alexander Romanovich Luria's teaching, confirmed in various forms and fields of work with people by his outstanding followers — L.S. Tsvetkova (who was Tatyana Vasilyevna's academic supervisor for her candidate's dissertation), E.D. Khomskaya, V.M. Shklovsky, and Zh.M. Glozman. T.V. Akhutina also belongs to this galaxy of scholar-devotees.

The consolidation of neuropsychology and psycholinguistics — at first glance, a quite logical step and one that has long since become a global research trend, primarily thanks to the efforts of A.R. Luria's scientific school, its worldwide authority, and its contacts with representatives of other approaches — presupposes a special vision of the object of analysis and practical facilitation. This vision was expressed by T.V. Akhutina in her work. At its foundation lies L.S. Vygotsky's genetic approach, in which corrective effects are conceived and achieved as results of development. This means that neuropsychology can only be a genetic science, and that psycholinguistics must create the basis for developmental facilitation for Homo Loquens at different age stages and in different social situations of development. For neither in the organization of the brain nor in the construction of culture, including language, are there ready-made mechanisms or recipes for speech production (the source of strength is not yet strength itself, if one has culture in mind). It is the person himself who must become the subject of speech production and “build” these mechanisms in communication with others and with their help.

This is an extremely complex, most subtle search-and-transformative process, described and conceptualized in the model of speech production developed by T.V. Akhutina together with A.A. Leontiev. This classical model has long been at work in psycholinguistics, but Tatyana Vasilyevna initially found her way toward it within the framework of the neuropsychological clinic and defectological practice. This model makes it possible to lift the veil on the mystery of the genesis of the human word as a whole — the word filled with the life of meaning. And of its understanding as well — since without understanding a word can only be “stillborn”, not filled with the life of meaning. “Speech production”, according to Akhutina, is, to put it mildly, a very far from simple, multi-step search process, which she describes in terms of “motive”, “thought”, “meaning syntaxing”, “choice of inner words”, “semantic syntaxing”, “choice of words by meaning”, “surface syntaxing”, “kinetic programming”, “choice of words by form”, and “choice of articulemes”. But this is movement along the steps of a single function-genetic ladder.

A special gift of Tatyana Vasilyevna is her insightful ability to see Homo Loquens and the social situation of their development, behind which — to use L.S. Vy-

gotsky's words from a letter to R.E. Levina — lies a human Destiny. Such vision is formed from different professional positions: that of a speech therapist, philology teacher, a neuropsychologist, a psycholinguist, a developmental psychologist, and an educational psychologist. Tatyana Vasilyevna graduated from the Defectology Faculty of the Moscow State Pedagogical Institute named after V.I. Lenin (now Moscow Pedagogical State University). A happy chance (not only for her — for all of us!) brought her, then a fourth-year student, to a practicum at the clinic of the N.N. Burdenko Institute of Neurosurgery. It was there that A.R. Luria worked with his group of colleagues. Tatyana Vasilyevna was spellbound by the procedure of examining patients conducted by Alexander Romanovich, revealing himself in his attitude toward each one not only as a great professional but also as a Personality who, in the words of A.F. Losev, is a miracle. And patients with severe speech impairments responded to him clearly and meaningfully. The zone of proximal — or perhaps some more distant — development? Destiny? A.R. Luria combined within himself a thinker and a dreamer. The student Tatyana Ryabova, the future Akhutina, came home and declared to her mother: “I want to work like Luria, with patients who have lost speech”. In this declaration every word is a “key” word, but the main one is “like Luria!”. Like a man who returned to people their lost worlds (see his book *The Lost and Returned World*). Tatyana Vasilyevna took up the teacher's baton, having accepted the message of his Personality.

This is especially important because all of us, who speak actively, much, and in varied ways, are somewhat lost in the modern world and are searching for ourselves. But Tatyana Vasilyevna is with us — she knows where, whom, and what to look for in it. The wonderful power of Tatyana Vasilyevna's delicate, cultured, motivating, and inspiring help has been experienced by hundreds and thousands of children and adults, including those who are not personally acquainted with her but have read her books. Among them, of course, are her students, undergraduate and graduate students, and colleagues, who are inexpressibly fortunate to be near her, to come into contact with her professional and personal gift, and to receive it as a gift. The power lies in development.

On behalf of the editorial board of the journal *Cultural-Historical Psychology*, I am happy to congratulate our dear Tatyana Vasilyevna on her wonderful anniversary and to wish her, in the years ahead, to uphold and multiply the glory of A.R. Luria's school, continuing her developmental facilitation for people in search of the Word, and in it — of themselves, thereby contributing to the development of 21st-century psychology.

V.T. Kudryavtsev,
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and Education,
Deputy Editor-in-Chief of the journal
Cultural-Historical Psychology



Standing: T.V. Akhutina and B.M. Velikovskiy; seated: V.V. Davydov and V.P. Zinchenko.
Photo from the archive of Prof. Michael Cole, taken in April 1986 during a break in the session of the Soviet-American seminar on developmental problems at the Institute of Psychology of the USSR Academy of Sciences.

“I have never regretted the choice I made”: An interview with T.V. Akhutina on the occasion of her anniversary

Interviewed by V.T. Kudryavtsev

Tatyana Vasilyevna, on your birthday — especially on such a special one, which we once again wholeheartedly congratulate you on — it is customary to remember your parents. Please tell us about your parental family. Did it influence your professional choice? What confirmed you in it?

My father, Ryabov Vasily Ivanovich, was a military man; he took part in the Finnish War and the Great Patriotic War. My mother, Gruzintseva Elena Nikolaevna, was a defectologist, an associate professor at the Moscow State Pedagogical Institute named after V.I. Lenin, and the author of Russian language textbooks for auxiliary schools, published from 1934 to 1961. In 1927 she entered the Defectology Faculty of the 2nd Moscow State University (later renamed the Moscow State Pedagogical Institute) and attended L.S. Vygotsky's lectures there. My mother carefully preserved Vygotsky's books and the transcript of his report delivered on December 23, 1933, at a meeting of the Department of Defectology of the Bubnov Pedagogical Institute (another name of the Moscow State Pedagogical Institute). But all of this came into play later.

I was led to the Defectology Faculty of the Pedagogical Institute by an inner crisis. At school I dreamed of going into mathematics or physics at Moscow State University, but then, together with several classmates,

we conceived the idea of going to Siberia to the “construction sites of communism” — for the sake of “self-improvement”. The rose-colored glasses quickly came off. My self-esteem dropped, and I made the decision to enter a universal faculty, or a faculty “for housewives”, where there would be a bit of philology, a bit of medicine, a bit of pedagogy — that is, the Defectology Faculty. Only later did I appreciate the opportunities it opened up, and this was connected with the appearance of Alexander Romanovich Luria in my life.

What were your impressions from your first meeting with A.R. Luria? What was especially attractive about his personality?

In the spring of 1962, fourth-year speech therapy students at the Defectology Faculty were invited to help conduct sessions with patients with aphasia. Two of us responded, and we went to learn to work at the N.N. Burdenko Institute of Neurosurgery, in A.R. Luria's laboratory. We were met by a laboratory staff member, Candidate of Medical Sciences E.N. Vinarskaya, and the speech therapist G.B. Rudaya. I first saw A.R. Luria in September 1962 at a patient case discussion. The patient had been preliminarily examined by E.G. Simernitskaya, who had just been hired at the laboratory after graduating from the Psychology Faculty of Moscow State Uni-

versity; this was her first case discussion. She reported the results of the patient's testing and raised the question of their interpretation. In response, Luria conducted several tests with comments for the staff on why he was choosing them. What I saw — the analytical search for the mechanism of the impairment — interested me so much that when I came home I said to my mother: "This is so interesting! This is exactly what I want to do all my life. Alexander Romanovich is such an extraordinarily remarkable scientist!!!" My mother replied: "A.R. is a good scientist, yes. But Lev Semyonovich Vygotsky — he is exactly like that!!!"

I have never regretted the choice I made. During my internship, I mastered not only speech therapy methods for overcoming aphasia but also methods of neuropsychological examination of patients. E.P. Kok, a brilliant neuropsychologist, helped me in this.

What was especially appealing about A.R. Luria's personality? To answer this question, I will give an example. As a student intern from the Defectology Faculty, I approach the world-famous scientist with a request: "A.R.! Please! Could you write a note — share your opinion on what a speech therapist should know?". A.R. asked again: "For which newspaper? Why are you asking?". I answered: "For the faculty wall newspaper *Defectologist*; I am a member of its editorial board". And unexpectedly, in response: "I'll bring it tomorrow". At the same time, he immediately switched to other matters. The next day he brought the handwritten text of the note. That was 1963. The note is now in press in my new book, *Studies in Neuropsychology and Neurolinguistics*. This example clearly shows A.R.'s democratic style of communication with colleagues and students, his enormous capacity for work, and his organization. A.R. loved his work; once, at the first lecture in September, he said to the students: "I had a good rest this summer — I wrote a book" (he meant the book *The Man with a Shattered World: The History of a Brain Wound*).

Why was it cultural-historical psychology in particular that became the "driver" of the development of neuropsychology?

In my view, cultural-historical psychology developed together with neuropsychology, rather than one following after the other. Take, for example, the 1930 report "On Psychological Systems". This report was a landmark in the development of cultural-historical psychology, but what is it about? It addresses the systemic nature of higher mental functions, and this is a fundamental principle of neuropsychology. L.S. Vygotsky speaks there about the social genesis of higher mental functions, and in unfolding the stages of interiorization, he explains the third — intrapsychological — stage with a neuropsychological proposition: "Two points of the brain that are stimulated from without tend to act within a single system and turn into an intracortical point" (Collected Works, vol. 1, p. 130). Vygotsky links sociogenesis with systemogenesis. A.R. Luria always emphasized L.S. Vygotsky's role in the creation of neuropsychology. One of the articles by the well-known Estonian neuropsychologist Aaro Toomela is titled "There can be no cultural-historical psychology without neuropsychology. And vice versa". I agree with this.

Do you characterize L.S. Vygotsky as a psycholinguist of the 21st century? Why?

L.S. Vygotsky is a forerunner of Russian psycholinguistics and our contemporary. Three features of his creative legacy serve as proof of this:

- 1) interdisciplinarity and methodological rigor;
- 2) an approach to the human being as part of nature, society, and culture;
- 3) a transition from the functional and structural linguistics of the early 20th century to generative psycholinguistics.

Подписи Г.Л. Выгодской и Т.М. Лифановой

Дорогой Танечке
Ахутинской с любовью
и глубоким уважением,
Гита Выгодская

Т.М. Лифанова



(Text on the photograph: "To dear Tanechka Akhutina, with love and deep respect. Gita Vygotskaya".
Signatures of G.L. Vygotskaya and T.M. Lifanova.)

T.V. Akhutina with the authors of the book Lev Semyonovich Vygotsky (Moscow, 1997) —
G.L. Vygotskaya and T.M. Lifanova (from the archive of T.V. Akhutina)

Unfortunately, within the framework of an interview I cannot speak about this in detail; I will only say that Vygotsky's discovery of "changes in word meanings and their development", which he considered "his main discovery" in the teaching on thought and speech, allowed him to approach the study of the inner side of speech. Vygotsky's book *Thought and Speech* and the Notebooks of L.S. Vygotsky (2017), recently published by E.Yu. Zavershneva and Rene van der Veer, give every ground for considering Vygotsky a forerunner of generative psycholinguistics.

Please tell us about your collaboration with A.A. Leontiev, whose anniversary is also being marked this year.

I would have told with great pleasure about my teacher and friend Alexei Alekseevich Leontiev,

about the happiness of working under his guidance and protection, but the framework of the interview allows me only to refer to my text written for the 90th anniversary of A.A. Leontiev's birth, published in the first issue of *Journal of Psycholinguistics* in 2026.

What would you like to wish to the readers of the journal *Cultural-Historical Psychology*, especially the young ones?

Dear readers! I hope I may say "Dear friends!", I wish you all a life full of anxieties and joys, falls and rises, much sunshine and a little rain. Success in your creative work! Good friends! Love and happiness! May good books and bright people be your teachers! May you be accompanied by a sense of being needed! Strength to you and warmth of heart!



Photo from the Pravmir portal

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