

Научная статья | Original paper

AI assistants and recommender systems as agents of algorithmic socialization

R.V. Ershova¹ ✉, Tigist Hunde²

¹ RUDN University, Moscow, Russian Federation

² Ambo University, Ambo, Ethiopia

✉ ershova-rv@rudn.ru

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

For citation: Ershova, R.V., Tigist Hunde (2026). AI assistants and recommender systems as agents of algorithmic socialization. *Cultural-Historical Psychology*, 22(3), 35–42. <https://doi.org/10.17759/chp.2026220304>

ИИ-ассистенты и рекомендательные системы как агенты алгоритмической социализации

Р.В. Ершова¹ ✉, Тигист Шиферау Хунде²

¹ Российский университет дружбы народов имени Патриса Лумумбы, Москва, Российская Федерация

² Университет Амбо, Амбо, Эфиопия

✉ ershova-rv@rudn.ru

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

Для цитирования: Ершова, Р.В., Хунде, Т.Ш. (2026). ИИ-ассистенты и рекомендательные системы как агенты социализации нового поколения. *Культурно-историческая психология*, 22(3), 35–42. <https://doi.org/10.17759/chp.2026220304>

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.

Список источников / References

1. Выготский, Л.С. (1983). *Собрание сочинений: в 6 т. Том 3. Проблемы развития психики*. М.: Педагогика.
Vygotzky, L.S. (1983). *Collected works: In 6 vols. Vol. 3. Problems of the development of the psyche*. Moscow: Pedagogika. (In Russ.).
2. Ершова, Р.В. (2022). Цифровая социализация: психологический аспект. В: *Актуальные проблемы развития личности в условиях современных реалий: Сборник материалов III Международной научно-практической конференции* (Ереван, 8–9 апреля 2022 года) (с. 252–256). Ереван: Российско-Армянский (Славянский) университет. <https://elibrary.ru/item.asp?id=49873636> (дата обращения: 25.05.2026).
3. Коул, М. (2009). *Культурно-историческая психология: наука будущего*. М.: Когито-Центр; Институт психологии РАН.
Cole, M. (2009). *Cultural-historical psychology: A science of the future*. Moscow: Kogito-Tsentr; Institute of Psychology RAS. (In Russ.).
4. Леонтьев, А.Н. (1975). *Деятельность. Сознание. Личность*. М.: Политиздат.
5. Ершова, Р.В. (2022). Digital socialization: Psychological aspect. In: *Current Issues in Personality Development in Contemporary Realities: Proceedings of the III International Scientific and Practical Conference* (Yerevan, April 8–9, 2022) (pp. 252–256). Yerevan: Russian-Armenian University. (In Russ.). <https://elibrary.ru/item.asp?id=49873636> (viewed: 25.05.2026).

- Leontiev, A.N. (1975). *Activity. Consciousness. Personality*. Moscow: Politizdat. (In Russ.).
5. Микляева, А.В. (2024). Цифровое общество и цифровая социализация: перспективы социально-психологических исследований. *Социальная психология и общество*, 15(2), 5–11. <https://doi.org/10.17759/sps.2024150201>
- Miklyayeva, A.V. (2024). Digital society and digital socialization: Prospects for socio-psychological research. *Social Psychology and Society*, 15(2), 5–11. (In Russ.). <https://doi.org/10.17759/sps.2024150201>
6. Солдатова, Г.У. (2018). Цифровая социализация в культурно-исторической парадигме: изменяющийся ребенок в изменяющемся мире. *Социальная психология и общество*, 9(3), 71–80. <https://doi.org/10.17759/sps.2018090308>
- Soldatova, G.U. (2018). Digital socialization in the cultural-historical paradigm: The changing child in the changing world. *Social Psychology and Society*, 9(3), 71–80. (In Russ.). <https://doi.org/10.17759/sps.2018090308>
7. Солдатова, Г.У., Нестик, Т.А., Рассказова, Е.И. (2020). *Цифровое поколение России: компетентность и безопасность*. М.: Смысл.
- Soldatova, G.U., Nestik, T.A., Rasskazova, E.I. (2020). *The digital generation of Russia: Competence and safety*. Moscow: Smysl. (In Russ.).
8. Солдатова, Г.У., Войскунский, А.Е. (2021). Социально-когнитивная концепция цифровой социализации: новая экосистема и социальная эволюция психики. *Психология. Журнал Высшей школы экономики*, 18(3), 431–450. <https://doi.org/10.17323/1813-8918-2021-3-431-450>
- Soldatova, G.U., Voiskounsky, A.E. (2021). Socio-cognitive concept of digital socialization: A new ecosystem and social evolution of the psyche. *Psychology. Journal of the Higher School of Economics*, 18(3), 431–450. (In Russ.). <https://doi.org/10.17323/1813-8918-2021-3-431-450>
9. Acikgoz, F., Perez-Vega, R., Okumus, F., Stylos, N. (2023). Consumer engagement with AI-powered voice assistants: A behavioral reasoning perspective. *Psychology and Marketing*, 40(6), 1178–1196. <https://doi.org/10.1002/mar.21763>
10. Ananny, M., Crawford, K. (2018). Seeing without knowing: Limitations of the transparency ideal and its application to algorithmic accountability. *New Media and Society*, 20(3), 973–989. <https://doi.org/10.1177/1461444816676645>
11. Bishop, S. (2019). Managing visibility on YouTube through algorithmic gossip. *New Media and Society*, 21(11-12), 2589–2606. <https://doi.org/10.1177/1461444819854731>
12. Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Harvard University Press. <https://doi.org/10.4159/9780674028845>
13. Campbell-Verduyn, M., Goguen, M., Porter, T. (2017). Big data and algorithmic governance: The case of financial practices. *New Political Economy*, 22(2), 219–236. <https://doi.org/10.1080/13563467.2016.1216533>
14. Clark, A. (2008). *Supersizing the mind: Embodiment, action, and cognitive extension*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195333213.001.0001>
15. Diakopoulos, N., Koliska, M. (2017). Algorithmic transparency in the news media. *Digital Journalism*, 5(7), 809–828. <https://doi.org/10.1080/21670811.2016.1208053>
16. Druga, S., Williams, R., Breazeal, C., Resnick, M. (2017). “Hey Google, is it OK if I eat you?” Initial explorations in child-agent interaction. In: *Proceedings of the 2017 Conference on Interaction Design and Children* (pp. 595–600). <https://doi.org/10.1145/3078072.3084330>
17. Ehret, C. (2024). Critical literacies in algorithmic cultures. *Literacy*, 58(1), 3–12. <https://doi.org/10.1111/lit.12363>
18. Engeström, Y. (2015). *Learning by expanding: An activity-theoretical approach to developmental research* (2nd ed.). Cambridge University Press. <https://doi.org/10.1017/CBO9781139814744>
19. Farrell, H. (2025). AI as governance. *Annual Review of Political Science*, 28, 421–439. <https://doi.org/10.1146/annurev-polisci-040723-013245>
20. Frith, C.D., Frith, U. (2012). Mechanisms of social cognition. *Annual Review of Psychology*, 63, 287–313. <https://doi.org/10.1146/annurev-psych-120710-100449>
21. Gritsenko, D., Wood, M. (2022). Algorithmic governance: A modes of governance approach. *Regulation and Governance*, 16(1), 45–62. <https://doi.org/10.1111/regg.12337>
22. Grusec, J. E. (2011). Socialization processes in the family: Social and emotional development. *Annual Review of Psychology*, 62, 243–269. <https://doi.org/10.1146/annurev.psych.121208.131650>
23. Hobbs, R. (2020). Propaganda in an age of algorithmic personalization. *Reading Research Quarterly*, 55(3), 521–533. <https://doi.org/10.1002/rrq.301>
24. Horton, D., Wohl, R. (1956). Mass communication and para-social interaction. *Psychiatry*, 19(3), 215–229. <https://doi.org/10.1080/00332747.1956.11023049>
25. Hosseinmardi, H., Ghasemian, A., Clauset, A., Mobius, H., Rothschild, D.M., Watts, D.J. (2021). Examining the consumption of radical content on YouTube. *Proceedings of the National Academy of Sciences*, 118(32). <https://doi.org/10.1073/pnas.2101967118>
26. Hutchins, E. (1995). *Cognition in the wild*. MIT Press. <https://doi.org/10.7551/mitpress/1881.001.0001>
27. Issar, S., Aneesh, A. (2021). What is algorithmic governance? *Sociology Compass*, 15(11). <https://doi.org/10.1111/soc4.12955>
28. Just, N., Latzer, M. (2017). Governance by algorithms. *Media, Culture and Society*, 39(2), 238–258. <https://doi.org/10.1177/0163443716643157>
29. Kaptelinin, V., Nardi, B. (2007). Acting with technology: Activity theory and interaction design. First Monday, 12(4). <https://doi.org/10.5210/fm.v12i4.1772>
30. Kim, K., Moon, S.-I. (2021). When Algorithmic Transparency Failed: Controversies Over Algorithm-Driven Content Curation in the South Korean Digital Environment. *American Behavioral Scientist*, 65(6), 847–862. <https://doi.org/10.1177/0002764221989783>
31. Kirkorian, H.L. (2018). When and how do interactive digital media help children connect what they see on and off the screen? *Child Development Perspectives*, 12(3), 210–214. <https://doi.org/10.1111/cdep.12290>
32. Literat, I., Kligler-Vilenchik, N. (2019). Youth collective political expression on social media. *New Media, Society*, 21(9), 1988–2009. <https://doi.org/10.1177/1461444819837571>
33. Livingstone, S. (2009). *Children and the Internet: Great expectations, challenging realities*. Polity Press.
34. Lovato, S., Piper, A.M. (2015). “Siri, is this you?” Understanding young children’s interactions with voice input systems. In: *Proceedings of the 14th International Conference on Interaction Design and Children* (pp. 335–338). <https://doi.org/10.1145/2771839.2771910>
35. Low, B., Ehret, C., Hagh, A. (2025). Algorithmic imaginings and critical digital literacy on #BookTok. *New Media and Society*, 27(4), 2336–2353. <https://doi.org/10.1177/14614448231206466>
36. Nass, C., Moon, Y. (2000). Machines and mindlessness. *Journal of Social Issues*, 56(1), 81–103. <https://doi.org/10.1111/0022-4537.00153>

37. Nieminen, J.H., Ketonen, L. (2024). Epistemic agency: a link between assessment, knowledge and society. *Higher Education*, 88, 777–794. <https://doi.org/10.1007/s10734-023-01142-5>
38. Pariser, E. (2011). *The filter bubble*. Penguin Press. <https://doi.org/10.3139/9783446431164>
39. Qin, X., Zhou, X., Chen, C., Wu, D., Zhou, H., Dong, X., Cao, L., Lu, J.G. (2025). AI aversion or appreciation? *Psychological Bulletin*, 151(5), 580–599. <https://doi.org/10.1037/bul0000477>
40. Rogoff, B. (2003). *The cultural nature of human development*. Oxford University Press.
41. Saurwein, F., Spencer-Smith, C. (2021). Automated trouble. *Media and Communication*, 9(4), 222–233. <https://doi.org/10.17645/mac.v9i4.4062>
42. Savolainen, L. (2022). The shadow banning controversy. *Media, Culture and Society*, 44(6), 948–964. <https://doi.org/10.1177/01634437221077174>
43. Selwyn, N. (2019). *Should robots replace teachers? AI and the future of education*. Polity Press.
44. Taeihagh, A. (2025). Governance of generative AI. *Policy and Society*, 44(1), 1–24. <https://doi.org/10.1093/polsoc/puaf001>
45. Tufekci, Z. (2017). *Twitter and tear gas: The power and fragility of networked protest*. Yale University Press.
46. Turkle, S. (2011). *Alone together: Why we expect more from technology and less from each other*. Basic Books.
47. Twenge, J.M. (2017). *iGen*. Atria Books.
48. Van den Bulck, H., Kulig, M., Hyzen, A., Puppis, M., Paulussen, S. (2025). Epistemic welfare and public service media's algorithmic recommender systems: A theoretical framework, operationalization and relevance for governance. *European Journal of Communication*, 40(6), 598–618. <https://doi.org/10.1177/02673231251385761>
49. Wertsch, J.V. (1998). *Mind as action*. Oxford University Press. <https://doi.org/10.1093/acprof:oso/9780195117530.001.0001>
50. Woodruff, E., & Hewitt, J. (2026). Epistemic Agency in the Age of Large Language Models: Design Principles for Knowledge-Building AI. *AI*, 7(3), Article 99. <https://doi.org/10.3390/ai7030099>
51. Yang, Q., van den Bos, K., Zhang, X., Adams, S., Ybarra, O. (2022). Identity lost and found. *Self and Identity*, 21(4), 406–429. <https://doi.org/10.1080/15298868.2021.1940270>
52. Zuboff, S. (2019). *The age of surveillance capitalism: The Fight for a Human Future at the New Frontier of Power*. Public Affairs.

Information about the authors

Regina V. Ershova, Doctor of Sciences (Psychology), Professor, Department of Psychology and Pedagogy, Peoples' Friendship University of Russia named after Patrice Lumumba (RUDN University), Moscow, Russian Federation, ORCID: <https://orcid.org/0000-0002-5054-1177>, e-mail: ershova-rv@rudn.ru

Tigist Shiferaw Hunde, Lecturer, Faculty of Psychology, Ambo University, Ambo, Ethiopia, ORCID: <https://orcid.org/0000-0001-5873-2683>, e-mail: tigistshiferaw82@gmail.com

Информация об авторах

Регина Вячеславовна Ершова, доктор психологических наук, профессор, профессор кафедры психологии и педагогики, Российский университет дружбы народов имени Патриса Лумумбы (ФГАОУ ВО РУДН), Москва, Российская Федерация, ORCID: <https://orcid.org/0000-0002-5054-1177>, e-mail: ershova-rv@rudn.ru

Тигист Шиферау Хунде (Tigist Shiferaw Hunde), преподаватель, факультет психологии, Университет Амбо, Амбо, Эфиопия, ORCID: <https://orcid.org/0000-0001-5873-2683>, e-mail: tigistshiferaw82@gmail.com

Contribution of the authors

Regina V. Ershova — conceptualization of the study; manuscript drafting and preparation; study design; supervision of the research process.

Tigist Shiferaw Hunde — literature annotation; manuscript drafting and preparation.

Вклад авторов

Ершова Р.В. — идея исследования; написание и оформление рукописи; планирование исследования; контроль за проведением исследования.

Тигист Ш.Х. — аннотирование, написание и оформление рукописи.

Все авторы приняли участие в обсуждении результатов и согласовали окончательный текст рукописи.

Conflict of interest

The authors declare no conflict of interest.

Конфликт интересов

Авторы заявляют об отсутствии конфликта интересов.

Ethics statement

As this study was theoretical and based on a review of the literature, ethics committee approval was not required.

Декларация об этике

Исследование носило теоретический обзорный характер, согласие этического комитета не требовалось.

Поступила в редакцию 17.03.2026

Поступила после рецензирования 31.08.2026

Принята к публикации 20.09.2026

Опубликована 30.09.2026

Received 2026.03.17

Revised 2026.08.31

Accepted 2026.09.20

Published 2026.09.30