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Avatar-mediated identity and life meaning orientations among internet users

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Abstract

Context and relevance. In digital reality, the attachment of young Internet users to their avatar — the digital self-image — is linked to the search for life's meaning and the problematic pathway of identity development. However, little is known about the sign mediation mechanism associated with these phenomena. The theoretical basis of the research was cultural-historical theory, within which an attempt was made to interpret an avatar as a sign. **Objective.** To study the mediating role of the avatar in the development of virtual identity and life-meaning orientations. **Hypothesis.** The avatar identification characteristics mediate the connections between virtual identity, identification with the avatar, and life-meaning orientations. **Methods and materials.** The study involved 457 young Internet users of online platforms (M = 20,6, SD = 2,6, 67% female). The study measured the indicators of virtual identity (VISI), Purpose-in-Life Test, (PIL), avatar identification (IOS), and avatar identification characteristics (the "Who am I?" test with modified instructions). **Results.** The results showed that the social, physical, and reflective characteristics attributed to the avatar are mediators of the effects of the search for and acceptance of virtual identity on life-meaning orientations (Goals, Result, Locus of control) and avatar identification. This means that avatar-mediated identity enhances clarity in life goals and satisfaction with self-realization, while reducing the flexibility of meaningful control over behavior among Internet users. **Conclusions.** It has been shown that the semiosis of the avatar, mediating the preadaptive pathway of development of identity and life-meaning orientations, depends on the experience and gender of the Internet user. The materials can be used in the development of new methods of applying avatar technologies to foster the psychosocial well-being of young Internet users.

Keywords: sign mediation, meaning, life meaning orientations, identity, virtual identity, avatar, avatar identification

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Аватар-опосредствованная идентичность и смысложизненные ориентации интернет-пользователей

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Резюме

Контекст и актуальность. В цифровой реальности привязанность молодых интернет-пользователей к своему аватару связана с поиском смыслов жизни и проблемным путем развития идентичности, но мало известно об ассоциированном с этими явлениями механизмом знакового опосредствования. Теоретической основой исследования послужила культурно-историческая теория, в контексте которой предпринята попытка осмыслить аватар как знак. **Цель**. Изучить опосредствующую роль аватара в развитии виртуальной идентичности и смысложизненных ориентаций. **Гипотеза**. Показатели сигнификативных и коннотативных значений идентификационных характеристик аватара опосредствуют связи между виртуальной идентичностью, идентификацией с аватаром, смысложизненными ориентациями. **Методы и материалы**. В исследовании приняли участие 457 молодых интернет-пользователей онлайн-платформ (M = 20,6, SD = 2,6, 67% женщин). В исследовании измерялись показатели виртуальной идентичности («Статус ВИ»), смысложизненных ориентаций (СЖО), идентификации с аватаром (IOS), идентификационные характеристики аватара (тест «Кто Я?» с измененной инструкцией). **Результаты.** Результаты показали, что коннотативные и сигнификативные значения социальных, физических, рефлексивных характеристик, приписываемых аватару, являются медиаторами эффектов влияния поиска и принятия виртуальной идентичности на смысложизненные ориентации (цели, результат, локус контроля) и идентификацию с аватаром так, что аватар-опосредствованная идентичность способствует повышению ясности жизненных целей и удовлетворенности самореализацией, но снижает осмысленный контроль над поведением интернет-пользователей. **Выводы**. Показано, что семиозис аватара, опосредствуя преадаптивный путь развития идентичности и смысложизненных ориентаций, зависит от опыта и пола интернет-пользователя. Материалы могут быть использованы в разработке новых методов применения аватар-технологий для содействия психосоциальному благополучию молодых интернет-пользователей.

Ключевые слова: знаковое опосредствование, значение, смысложизненные ориентации, идентичность, виртуальная идентичность, аватар, идентификация с аватаром

Introduction

According to the principle of mediation, adopted in cultural-historical psychology (Zavershneva E., van der Veer R. (Ed.), 2018), the existential-personal development is mediated by sign systems and practices. Advances in digital technologies have stimulated the development of the metaverse — a computer-generated immersive digital environment that simulates the physical world and in which social interaction between people occurs (Giang Barrera, Shah, 2023) — and have led to the "decarnation" of the physical environment, associated with the complication of the mechanisms of sign-symbolic mediation in the development of the human user: digital technologies as "secondary" signs (Rubtsova, 2019) "re-mediate" previously formed mental and personal structures (Tikhomirov, 1993), lead to the digital expansion of the personality and transformation of identity (Soldatova, Chigarkova, Ilyukhina, 2024), blurring the boundaries between personality and technology.

Although most research on the phenomenon of human presence in the metaverse is conducted from a technological perspective (Crespo-Pereira, S nchez-Amboage, Membiela-Poll n, 2023), the most traceable theme in psychological research on *identity* in the

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metaverse concerns the phenomena related to the mediating role of the *avatar* — a digital visualized image controlled by a human user or software and capable of interaction (Mancini et al., 2024). Researchers note that a new type of technologically mediated attitude of the human user to their self-image embodied in the virtual environment is being formed — *identification with the avatar* (Brown et al., 2024), attachment to the avatar (Stavropoulos et al., 2023), and merging with the avatar (M sseler, von Salm-Hoogstraeten, B ffel, 2022).

The influence of the avatar on the cognitive, affective, and behavioral aspects of human development in the virtual environment has become evident (Peng, Cowan, Lo Ribeiro, 2025). However, contemporary empirical research demonstrates contradictory data regarding the role of avatar identification in the psychosocial well-being of young people. Researchers note that identification with the avatar negatively correlates with indicators of psychosocial well-being (Mancini et al., 2024), clarity of life meanings (Klementyeva, 2024), and self-perception (Yang et al., 2024), but positively correlates with identity crisis (M ller, Bonnaire, 2021) and the search for meaning in life (Fraser, Slattery, Yakovenko, 2023). Other authors assert a positive correlation between avatar-mediated technologies and mental health indicators (Barabanschikov, Selivanov, 2023). Modern psychologists often find explanations for these contradictory effects within the framework of R.W. Belk's "extended self" and E.T. Higgins' "self-discrepancy" theories, suggesting an extension of the "actual self," "ideal self," and the avatar (Snodgrass et al., 2025). The emergent "self-avatar" system is characterized by measures of identification with the avatar, objectivation, idealization, and user self-actualization through the avatar, and is also considered a factor of compensatory behavior in the virtual environment.

However, within this system, the interrelation between the avatar and *virtual identity*, which integrates the experience of uniqueness and belonging to a virtual community, is defined ambiguously. Some researchers interpret the avatar as virtual identity (Nagy, Koles, 2021); others differentiate between virtual identity and the avatar, identifying different types of user-avatar relationships such as self-identification, symbiosis, subject-object, and subject-subject relations (Banks, Bowman, 2021), emphasizing the relative independence of the avatar from the user's preferences and personality traits (Lemenager et al., 2020; Mancini et al., 2024; Zimmermann, Wehler, Kaspar, 2023). In other words, avatars, through which users express themselves, form identity, establish social partnerships in the virtual environment, and are not equivalent to virtual identity.

The debate about the avatar's role in users' psychosocial development highlights problematic issues concerning the attributive characteristics of avatars. Previous research has focused on the *technical* characteristics of avatars — the realism of their form and behavior as correlates of users' "real" identity (Stavropoulos et al., 2023; Snodgrass et al., 2025; Wang et al., 2024; Zimmermann, Wehler, Kaspar, 2023), emphasizing a higher level of self-presentation in interactions with realistic and "intelligent" avatars compared to unrealistic ones (Miao et al., 2022). Contemporary researchers emphasize the preferential use by online users of anthropomorphic, realistic avatars for their self-presentation — "metahumans" in the virtual world (Pawar, Mishra, 2025).

Undoubtedly, this approach has its advantages. However, such an interpretation is incomplete, as it hinders the psychological analysis of avatar identification. We believe that such an analysis is possible within the context of the *"mediation" principle*, where the avatar can be interpreted as a sign, a psychological tool for the formation of virtual identity and the promotion of human psychosocial well-being in the virtual environment.

The works of Russian researchers (Klementyeva, 2024; Rubtsova, 2019; Soldatova, Chigarkova, Ilyukhina, 2024) have outlined a pathway for applying the ideas of cultural-historical psychology to explain the sign-symbolic mediation of identity development processes in the digital environment; however, research on the sign function of the avatar is lacking.

With the present study, we contribute to the existing research concerning the role of the avatar in user identity development and propose to apply a cultural-historical approach for the psychological interpretation of avatar identification.

Carrying on the traditions of cultural-historical psychology, we believe the avatar can be interpreted by extrapolating the attributive characteristics of signs, as generalized in the works of Russian psychologists (Veraksa, 2024; Zavershneva E., van der Veer R. (Ed.), 2018): sociality, mediation, arbitrariness, systemic nature, intentionality, conventionality, and meaningfulness. From this perspective, the *avatar* is presented as a *significant (sign) function of the human user's self-consciousness*, reflecting and forming their virtual identity in the digital environment in a generalized and structured manner for the purpose of generating, storing, processing, and transmitting personally significant information. In other words, as a sign, the avatar functionally *replaces and models* human *identity* in the virtual environment, at the same time serving as a means for its *formation* and self-awareness. Within the sign structure of the avatar, one

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can distinguish the material aspect of the avatar and the ideal aspect, which influences identity — the meaning. Identification with the avatar can be viewed as a result of virtual collaboration with avatars of other users (and/or avatars managed by artificial intelligence), during which the avatar becomes "signified" and attached with subjective meaning. The emergent network of meanings and significations of the avatar, we believe, guides the user's identification process in the virtual environment. The transition from the interpsychic to the intrapsychic plane of avatar use is governed by interiorization mechanisms and concerns the *formation of a new type of identity — virtual identity*.

Indirect confirmation of our hypothesis can be found in studies that have substantiated the mediating role of the avatar in mental and behavioral functions: 1) both proximity to the user's self-perception (Yang et al., 2024) and correspondence with the "ideal Other" (Snodgrass et al., 2025; Wang et al., 2024) have been found in avatars; 2) the "Proteus effect" data demonstrate users' tendencies to transfer behaviors that corresponded to avatar characteristics into their natural environment (Coesel, Biancardi, Buisine, 2024).

The study of avatar identification is possible within the framework of examining the process of imbuing the avatar with meaning and significance, in the dialectic of comprehending the meanings and signifying the significations. The primary function of a sign is semiosis, the formation of meanings. The most important place in cultural-historical psychology is given to the study of meanings fixed in language, which generalize and comprehend the "transformed" form of existence of cultural objects and social relations world. An analysis of the significant and connotative meanings of the avatar, with which the user imbues it, will allow for a psychological analysis of the formation of avatar-mediated identity within a system of connections with existential-personal properties. And although an attempt at semantic analysis of avatar identification has been made in modern psychology (Banks, Bowman, 2021; Brown et al., 2024), the interpretation of the obtained results does not involve the meanings of the avatar, and identification with the avatar is conducted within the psychodynamic context of "self-discrepancy."

Thus, numerous attempts to understand the mechanism of user identification with an avatar, and through it, the ways identity and life meaningfulness are formed in the virtual environment, contribute to the rapid accumulation of empirical material that is characterized by multifacetedness and generalization challenges, which makes the problem of the limited research contexts of avatar-mediated identity relevant. A contradiction is evident between the accumulated scientific psychological knowledge about avatar identification and the lack of a conceptual understanding of the sign mediation mechanisms associated with this phenomenon.

Based on the foregoing, the ***purpose of this research*** is to study the sign function of the avatar within the system of connections between virtual identity, avatar identification, and life meaning orientations among internet users.

The research hypothesis is that the significant and connotative meanings of the identification characteristics of the avatar mediate the connections between indicators of virtual identity, avatar identification, and life meaning orientations.

The general hypothesis is further elaborated in the following specific hypotheses:

1) there is an interrelationship between the meanings of the avatar, virtual identity, avatar identification, and life meaning orientations;

2) indicators of the significant and connotative meanings of the avatar mediate the influence of virtual identity on life meaning orientations and avatar identification.

Materials and methods

Sample. 457 internet users aged 18-25 studying at universities in Moscow (n = 257) and Tula (n = 200) participated in the research. The median age was 20 years. Of these: 67,5% (n = 308) were female and 32,5% (n = 149) were male. The sample was randomized.

Procedure. The inventories were submitted remotely and anonymously. Written informed consent was obtained from respondents for their participation in this study. A mixed-methods research plan was employed, combining quantitative and qualitative approaches.

Research tools. The following methods were applied: assessment of virtual identity (Klementyeva, 2024), life meaning orientations (Osin, Kosheleva, 2020), avatar identification (Yang et al., 2024), and avatar identification characteristics (the "Who Am I?" test (Rumyantseva, 2006) with a modified instruction: "You need to give as many answers as possible to one question related to your avatar: What kind of avatar?").

Quantitative data processing was carried out using comparative (t-test and Fisher's *- angular transformation criterion), correlational (Pearson's r-test), and regression (Hayes' process) analysis.

Qualitative data processing (avatar identification characteristics) was conducted using content analysis. 30 K-variables were identified and grouped into 8 categories of significant meanings (significates, *Lat. signi-*

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ficata) of identification characteristics: social, communicative, material, physical, activity-based, prospective, reflective, problematic (Rumyantseva, 2006).

Additionally, respondents' answers were classified into two groups based on avatar realism (Miao et al., 2022): 1) unrealistic — 2D images, anime, and static images (45% of participants); 2) realistic — 3D images, visually dynamic images, and anthropomorphic images (55% of participants).

Results

A comparative analysis of the frequency of occurrence of avatar identification characteristics in groups ranked by gender revealed that men more often single out the social characteristic of the avatar ($\varphi^* = 2{,}14$, $p = 0{,}016$), while women emphasize the physical characteristic of the avatar ($\varphi^* = 1{,}71$, p = 0,045). Furthermore, comparatively lower indicators of physical and reflective avatar characteristics were found among internet users experiencing a moratorium on virtual identity ($\varphi^* \leq 2{,}32$, p ≤ 0.01). Pairwise comparisons revealed a preferential use of reflective ($\varphi^* \leq 2{,}49$, p ≤ 0,005) and physical ($\varphi^* \leq 1{,}98$, p ≤ 0,02) avatar characteristics compared to other characteristics.

It was also revealed that participants more frequently attribute reflective characteristics to realistic avatars ($\varphi^* = 1{,}91$, p = 0,03), and physical characteristics to unrealistic ones ($\varphi^* = 1{,}8$, p = 0,04). The study participants who indicated the use of realistic avatars demonstrated higher levels of avatar identification (t = 2,4, p = 0,01) compared to those participants who used unrealistic avatars.

The results of the correlation analysis are given in Table 1. Table 1 only presents the indicators of significant values (significates) of avatar identification characteristics that have relevant correlations.

Based on the correlation analysis data, the predominant use of the physical characteristic of the avatar (avatar's appearance) distinguishes internet users who meaningfully adapt their identity to the virtual environment, identify with their avatar, and also demonstrate clarity of life goals, general meaningfulness of real life, and satisfaction with self-realization. Conversely, the emphasis on the social characteristic of the avatar (avatar's position, role, status, and affiliation with social groups) is characteristic of internet users who are oriented towards a meaningless adaptation to the virtual environment, accompanied by a low meaningfulness of real life, confusion of life goals, and a loss of control over life. Internet users who attribute existential-personal properties to their avatar (reflective identification characteristic of the avatar) tend to identify with their avatar in the virtual environment, while those who imbue their avatar with a communicative characteristic are satisfied with self-realization in the real world. The problematic characteristic of the avatar is inherent in Internet users who avoid interaction in the virtual environment using an avatar, experience difficulties with virtual identification, and are dissatisfied with self-realization. Internet users who use negative connotations of the avatar experience difficulties with life meaning orientations.

Furthermore, a correlation was found between the extent of avatar usage experience and the physical ($r = 0{,}12$, p = 0,01) and reflective ($r = 0{,}15$, p = 0,003) characteristics of the avatar, as well as with avatar identification ($r = 0{,}20$, p < 0,001), and the search for and commitment to virtual identity ($r \leq 0{,}14$, p ≤ 0,004).

Table 1

Correlation of indicators of virtual identity, life-meaning orientations, avatar identification and avatar identification characteristics (N = 457)

| Parameters | Avatar identification characteristics | | | | | | |
| | Significants | | | | | Connotations | |
	C	*К*	*Ф*	*P*	*П*	+	-
Meaningfulness of commitment of virtual identity	−0,16*	0,03	0,15*	0,05	−0,13*	−0,01	−0,03
In-depth exploration of virtual identity	−0,12*	−0,01	−0,03	−0,01	0,03	−0,01	0,02
Avatar identification	0,06	0,07	0,14*	0,12*	−0,21*	0,14*	0,05
Purpose	−0,18*	0,08	0,13*	0,01	−0,05	0,07	−0,18*
Process	−0,06	0,04	0,06	0,02	−0,02	0,09	−0,20*
Result	−0,05	0,14*	0,13*	0,01	−0,14*	0,08	−0,20*
Locus of control	−0,15*	0,05	0,09	−0,01	−0,06	0,03	−0,08
Overall index of meaningfulness of life	−0,16*	0,08	0,14*	0,01	−0,07	0,09	−0,22*

Note: «*» — correlation is significant at the 0,01 level (two-sided). Avatar identification characteristics: «C» — social, «К» — communicative, «Ф» — physical, «P» — reflective, «П» — problematic; «+» — positive connotative meanings; «−» — negative connotative meanings.

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Table 2 presents the relevant results of the mediation analysis, where the parameters of life meaning orientations and avatar identification are the dependent variables, indicators of virtual identity are predictors, and the connotative and significant values (significates) of avatar identification characteristics are mediators, mediating the effects of the connection between dependent and independent variables.

The results demonstrate a statistically significant indirect effect of influence of indicators of the search for and commitment to virtual identity on life meaning orientations and avatar identification through the indicators of significant and connotative meanings of avatar identification characteristics (social, physical, communicative, and reflective), which validate the proposed hypothesis. Furthermore, there is a statistically significant direct influence of virtual identity on life meaning orientations and avatar identification. In other words, avatar-mediated virtual identity contributes more to the variability of life meaning orientation indicators (purpose in life, outcome of life, and locus of control) compared to *non*-avatar-mediated virtual identity, increasing clarity of life goals and life satisfaction, but decreasing the sense of control over life in the real world.

Discussion of results

This study expands the scope of previous research on avatar identification by offering a new perspective on the connection between internet users and their avatars, a topic explored in foreign psychology, within the framework of L.S. Vygotsky's cultural-historical psychology. We continue the tradition of Russian psychology in studying the mechanism of sign mediation in virtual environments (Rubtsova, 2019; Soldatova, Chigarkova, Ilyukhina, 2024), interpreting the avatar as a sign and analyzing its meanings (significant and connotative).

The study confirmed the hypothesis that the significant and connotative meanings of avatar identification characteristics mediate the interrelation of virtual identity, avatar identification, and life meaning orientations — one of the key indicators of human psychological well-being. This aligns, in general, with the conclusions of previous works (Barabanschikov, Selivanov, 2023; Soldatova, Chigarkova, Ilyukhina, 2024; Banks, Bowman, 2021; Msseler, von Salm-Hoogstraeten, Bffel, 2022). It was found that the meaningful commitment to avatar-mediated identity by internet users contributes to increased clarity of life goals and satisfaction with self-realization. This primarily occurs through attributing

Table 2

Analysis of the effects of avatar-mediated virtual identity on the life-meaning orientations and avatar identification (N = 457)

Dependent variables	Mediators	Quality indicators of the mediation model		
		Total effect	Direct effect	Indirect effect
Predictor – Meaningfulness of commitment of virtual identity				
Purpose (F = 7,2***; R² = 0,11)	Social significates	b = 0,16 (t = 5,6***)	b = 0,14 (t = 5,0***)	b = 0,02 (t = −2,42*)
	Negative connotations			b = 0,01 (t = −3,47**)
Result (F = 4,9***; R² = 0,09)	Communicative significates	b = 0,10 (t = 4,43***)	b = 0,08 (t = 4,02***)	b = 0,02 (t = 2,41**)
	Negative connotations			b = 0,01 (t = −4,00***)
Locus of control (F = 4,7***; R² = 0,06)	Social significates	b = 0,06 (t = 2,89**)	b = 0,04 (t = 2,38*)	b = 0,02 (t = −2,01*)
Avatar identification (F = 6,3***; R² = 0,10)	Social significates	b = 0,28 (t = 2,92***)	b = 0,26 (t = 4,72***)	b = 0,01 (t=2,01*)
	Reflective significates			b = 0,01 (t = 1,98*)
Predictor – In-depth exploration of virtual identity				
Locus of control (F = 2,8**; R² = 0,05)	Social significates	b = −0,06 (t = −1,98*)	b = −0,04 (t = −2,12*)	b = 0,01 (t = −2,98**)
	Physical significates			b = 0,01 (t = 2,08*)
Identification with an avatar (F = 4,1***; R² = 0,05)	Physical significates	b = 0,16 (t = 3,00**)	b = 0,18 (t = 3,11**)	b = 0,01 (t = 2,00*)
	Reflective significates			b = 0,01 (t = 2,12*)

Note: «*» — *p* < 0,05; «**» — *p* < 0,01; «**» — *p* < 0,001.

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significant meanings of social, physical, and reflective identification characteristics to their avatars. Negative connotations reduce the effect of the positive influence of avatar-mediated identity on the meaningfulness of life in the future and the past. Apparently, the semantic space of avatar meanings formed in this manner, within the dialectic of "external-internal" relationships, facilitates the transition from *sociocultural* manipulation of the avatar as a mediator (or tool) in interactions between users (e.g., for role-playing or representation in social networks) to an *existential-personal* use of the avatar within the new "self-avatar" psychological system, where the avatar embodies the user's identity. Of interest in this context is the revealed reduction in the conscious sense of control over life and behavior among young internet users with avatar-mediated virtual identity, which is likely caused by the "decarnation" of the physical environment, increased uncertainty of the virtual environment and dependence on technical avatar settings (degree of avatar realism), and reduced freedom of choice due to the limited conditions of the virtual environment.

The positive effect of influence, as we believe, is due to the mechanism of sign mediation within the artificial system of *"identity — avatar (sign) — meaning of life,"* which creates new sociocultural connections between functions where identity dominates. However, the limited technical characteristics of the avatar pose a barrier to further psychological mediation by the avatar-as-sign, hinder the flexibility of conscious control over behavior and, more broadly, life in general, forcing the user to adapt the "identity — *avatar (sign)* — meaning of life" system to the avatar's capabilities and limitations. In this case, it is the avatar, not the identity, that assumes the dominant function. The difficulties in self-regulation arising in this artificial system, in our opinion, are one of the reasons for the correlation between psychosocial ill-being and problematic avatar identification observed in modern research (Brown et al., 2024; Mancini et al., 2024; M ller, Bonnaire, 2021; Yang et al., 2024).

The study revealed that the frequency of social, physical, and reflective identification characteristics attributed to one's avatar reflects the dependence of the avatar's significant function on gender, usage experience, and virtual identity status. The obtained data clarify the conclusions of contemporary researchers regarding the higher engagement of men in avatar-mediated experiences (Lemenager et al., 2020; Wang et al., 2024; Zimmermann, Wehler, Kaspar, 2023): novice male users who experience difficulties describing their avatar's appearance and attributing existential-personal characteristics to it more often undergo an identity crisis than women.

Conclusion

The study results allow us to conclude a connection between avatar-mediated virtual identity and life meaning orientations. The signification of physical, reflective (existential-personal), and social identification characteristics of the avatar is associated with a preadaptive pathway of virtual identity formation, accompanying the increased satisfaction with self-realization and clarity of life goals. However, avatar semiosis not only expands the opportunities for successful self-realization and efficient goal-setting in the virtual environment but also poses to individuals an existential-personal challenge of self-regulation and self-determination within the artificially created "self-avatar" system. Overcoming this challenge faces barriers related to the avatar's significant and technical characteristics. Our findings regarding the role of the avatar's significant function are relevant for future psychological research on identity within the metaverse, where human interaction is mediated by avatars, and the processes of existential-personal human development are dependent on digital technologies. The research materials can be used in the development of new methods for applying avatar-mediated technologies to foster the psychosocial well-being of young users.

Limitations. The limitations are related to the sampling and the research plan. Firstly, no conclusions can be drawn about the changes in the relationship between avatar-mediated identity and life-meaning orientations over time. Secondly, the limitation arising from the sampling based on socio-demographic and territorial characteristics does not allow for broad generalizations of the results.

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