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**Психолого-педагогические
исследования**

**Psychological-Educational
Studies**

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Развитие саморегуляции
у детей и подростков

Self-Regulation Development
in Children and Adolescents

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«Развитие саморегуляции у детей и подростков»

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Dear friends!

The thematic issue of the journal “Psychological-Educational Studies” (no. 3-2023) is devoted to research on self-regulation development in children and adolescents. It reflects the interdisciplinary nature of self-regulation problem from both psychological and pedagogical aspects.

A fundamental scientific problem is that of self-regulation. Within the context of the resource approach, which has been intensively developed lately, we consider deliberate self-regulation as the controlling level of the integral system of human psychic self-regulation. This level is realized by an individual’s universal and specific regulatory competences, which allow him/her to set goals consciously and independently and to manage their achievement. As our empirical studies have shown, these competences contribute directly to success and are also a person’s psychological means of mobilizing, integrating and mediating the influence of various subsystems of a person’s cognitive, personal and psychophysiological resources and reserves on his/her behavior. In this sense, conscious self-regulation is a controlling meta-resource for consciously solving various life tasks, a criterion of subjectivity and personality development.

Mental self-regulation problem is relevant not only fundamentally, but also practically. Its importance for education is emphasized by the fact that regulatory resources are the psychological basis for forming universal learning activities and achieving meta-educational outcomes (subject, regulatory and personal), which in modern FSES are designated as educational goals for all educational levels. New guidelines for the competence approach development in education are given thanks to the results of the research on the self-regulation of the educational goals attainment. These results also put forward the practical task of generating meta-resources as an extensive system of universal regulatory competences for widely diversified tasks of learning, personal self-education and professional self-determination. What is more, the research carried out in this area has led to the development of ideas about specific regulatory competences needed to cope with various professional and educational activities. Among the most important conclusions for educational psychology is one that regulatory meta-competences can be developed as an effect of learning, in which an individual’s subjectivity is formed first in situations of acquiring knowledge about the world, and then in a broader context of personal life activity, when solving self-education problems.

The least studied area of self-regulation psychology – differential and ontogenetic aspects of self-regulation development among children and adolescents – is the subject of the articles in our special issue. A.M. Potanina’s and V.I. Morosanova’s article reviews modern foreign studies of the most important (according to meta-analyses) psychological resources of academic performance within the framework of the individual-oriented approach. The identified empirical

typologies of special regulatory resources for achieving educational goals, including adolescents' exam success, are described. General conceptions of age-related typological differences in the regulatory and personal resources of students' academic achievements in primary and secondary school are elaborated. In adolescents' transition to high school, deliberate self-regulation development is shown to be predictive of increased school engagement and academic performance.

I.N. Bondarenko and T.G. Fomina in their article, using the resource approach and the empirical research results, verify the model of the relationship between conscious self-regulation of learning goals achievement, psychological well-being and young adolescent students' academic performance. Conscious self-regulation is found to be an essential resource for maintaining adolescents' academic performance and well-being. The unitary model identifies how regulatory and personal resources jointly contribute to learning success. The resource role of psychological well-being and achievement motivation in relation to academic performance was revealed.

The research team – E.A. Chichinina, D.A. Bukhalenkova, A.V. Chursina and A.Ya. Boldyreva – focuses on the specifics of digital devices use among pre-schoolers. The authors apply L.S. Vygotsky's idea of the objects' cultural and natural use to present an original way of analyzing digital devices use. Based on the results of the survey of boys and girls aged 6-7, a hypothesis is formulated regarding the differences in self-regulation between boys and girls related to the characteristics of using digital devices. More research needs to go into confirming this.

The articles dealing with modern children's learning and development based on research findings and offering various ways of psychological and pedagogical support for developing different self-regulatory functions should be of particular interest to readers. For example, the issue of the relationship between additional music lessons and the development of such regulatory functions as working memory, inhibition, cognitive flexibility is addressed in the article "The Relationship between Music Lessons and the Development of Regulatory Functions in Children Aged 6-7" (written by L.F. Bayanova, A.G. Dolgikh and A.A. Yakushina).

A.M. Fedoseeva's and N.V. Babkina's article discusses the problem of emotional self-regulation development as a process of independent experience in its cultural-symbolic mediation. The results of an experimental study of developing emotional regulation in adolescents with mental retardation (MRD) are presented. The authors pay particular attention to describing changes in the experience of listening to music in different groups of adolescents, emphasising the need for adult mediation to develop experiential autonomy as a condition for emotional development and social adaptation in adolescents with mental retardation.

M.V. Voropaev's and V.S. Neumyvakin's article will not allow our readers – teachers – to stay indifferent. It describes an urgent pedagogical problem concerning how to find ways to

promote the formation of conscious self-regulation of learning activities within mass school environment as the basis of students' subjectivity via pedagogical methods. The article presents the results of a successful large-scale three-year pedagogical experiment. It was aimed at testing the effectiveness of the author's system of pedagogical support for developing self-regulation of learning activities and increasing the regulatory role of adolescents' self-awareness in primary career choice processes during the training period in profile classes. The elaborated system takes into account the theory and diagnostics of conscious self-regulation development, created in V.I. Morosanova's scientific school. In accordance with them, the system was designed considering both the need to form learning activity self-regulation skills and to create conditions for developing self-awareness regulatory functions. The experiment involved all educational process subjects. Key educational tools were specific classes on developing self-regulation of learning activities, creating situations of personal and professional autonomy, helping students make these choices, counselling and explanatory work based on personal and professional development plans. It is shown that increasing the degree of responsibility in choosing is directly related to developing the regulatory functions of self-awareness. The fact that the explanatory work was carried out with both the students and their parents in this direction is very important. The study results confirmed that pedagogical support system used is effective, with relative gains in all levels of learning activity self-regulation averaging between 20 and 30% (compared to the control group).

We hope that this issue will be interesting and useful for our readers, psychologists and teachers. Its materials will give an idea of the modern scientific approaches to studying the development of self-regulation in children and adolescents, as well as how these approaches translate into empirical studies. Moreover, the most important thing, I believe, is that it will increase mutual understanding as well as interdisciplinary interaction among specialists in the field of education.

Thematic editor:

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Psychological Resources of Adolescents' Achievement: Differential Aspects

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In recent years, psychologists pay more and more attention to the study of individual typological characteristics of people. The introduction adduces the purpose of the article – to analyze current trends in the study of non-cognitive predictors of adolescent achievement and summarize new data obtained in empirical studies of psychological resources of academic success. The first section of the article analyzes in detail the recent foreign studies of the most significant (according to meta-analyses) psychological resources of academic performance within the framework of an individual-oriented approach. Among the new trends, there is a focus on studying the profiles of psychological resources of academic achievement and their stability in different age periods, as well as an interest in predicting academic performance depending on the type of profile. The second section of the article analyzes the results of empirical studies of the students' individual characteristics in the context of the differential-typological approach, conducted at the Psychological Institute of the Russian Academy of Education. The authors considered typologies created in the framework of studying the temperamental and characterological foundations of students' conscious self-regulation. They describe empirical typologies of special regulatory resources for achieving educational goals, including examination success. The research results allowed to develop the generalized ideas about age-related differential-typological differences in the regulatory and personal resources of academic achievement of the basic and high school students. The conclusion is made about the resource role of conscious self-regulation and school engagement in maintaining students' academic performance. The studies demonstrated the predictive effect of conscious self-regulation on academic performance and school engagement during the students' transition to high school. The conclusive part emphasized the practical significance of supplementing the studies of general patterns of manifestation of the psychological resources of academic performance with an analysis of students' individual-typological characteristics which can be fruitful for the development of an individual approach in education.

Keywords: differential approach; psychological resources; conscious self-regulation; motivational features; personality dispositions; school engagement; academic performance.

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Потанина А.М., Моросанова В.И.

Психологические ресурсы успеваемости подростков:
дифференциальные аспекты
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Психологические ресурсы успеваемости подростков: дифференциальные аспекты

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В последние годы в психологии все больше внимания уделяется изучению индивидуально-типологических особенностей людей. Во введении сформулирована цель статьи, которая заключается в анализе современных тенденций в исследовании некогнитивных предикторов успеваемости подростков и обобщении новых данных, полученных в эмпирических исследованиях многомерных типологий психологических ресурсов успешности в образовании. В первом разделе статьи подробно проанализированы современные зарубежные исследования наиболее значимых по данным метаанализов психологических ресурсов успеваемости в рамках индивидуально-ориентированного подхода. Среди новых тенденций отмечена направленность на исследование профилей психологических ресурсов успеваемости и их устойчивости в различных возрастных периодах, а также интерес к прогнозированию академической успеваемости в зависимости от типа профиля. Во втором разделе статьи проанализированы результаты эмпирических исследований особенностей обучающихся в контексте дифференциально-типологического подхода, проведенных в Психологическом институте РАО. Рассмотрены типологии, созданные в рамках исследования темпераментально-характерологических основ осознанной саморегуляции обучающихся. Описаны эмпирические типологии специальных регуляторных ресурсов достижения учебных целей, в том числе экзаменационной успешности. Развита обобщенные представления о возрастных дифференциально-типологических различиях в регуляторных и личностных ресурсах академических достижений обучающихся в основной и старшей школе. Делается вывод о ресурсной роли осознанной саморегуляции и школьной вовлеченности в поддержании академической успеваемости. Показан прогностический эффект осознанной саморегуляции для успеваемости и вовлеченности при переходе в старшую школу. В заключении подчеркивается практическая значимость дополнения исследований общих закономерностей проявления психологических ресурсов успеваемости подростков анализом их

индивидуально-типологических особенностей для развития индивидуального подхода в образовании.

Ключевые слова: дифференциальный подход; психологические ресурсы; осознанная саморегуляция; мотивационные особенности; личностные диспозиции; школьная вовлеченность; академическая успеваемость.

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Introduction

Psychological science has traditionally been a multi-paradigm field of scientific knowledge, which is embodied not only in the multitude of diverse approaches to the study of psychological phenomena and patterns, but in the general methodology itself. One of the manifestations of this diversity is the division into two general methodological orientations: the approach to the study of general patterns ("variable-centered approach") and the person-oriented approach, aimed at studying individual manifestations of psychological phenomena and regularities [35]. The person-centered approach in modern psychology is associated with the theoretical model developed in the works of D. Magnusson and colleagues, which emphasizes the subjective activity of an individual in the "person-environment" system [23; 27]. [23; 27]. This approach is aimed at identifying profiles understood as naturally occurring combinations of theoretically related variables at the individual level [23]. The person-oriented approach meaningfully complements studies of general patterns, as it allows for the most accurate reflection of the diverse manifestations of multidimensional psychological phenomena [31].

In modern psychology, this approach attracts an increasing interest of researchers, especially in the context of studying psychological characteristics that act as resources of academic success (e.g., [31; 38]). This interest is due not only to the fundamental value of the differential approach, but also to its practical possibilities: its application allows for the solving of problems of predicting the manifestations revealed by using the analysis of general patterns in individuals. The latter, firstly, focuses on the study of psychological variables rather than individuals, and secondly, makes it possible to study the relationships between these variables on the average values level, whilst not allowing for the study of individual trajectories. In addition, knowledge about differential psychological differences is extremely important for psychological and pedagogical work, serving as a basis for counseling and individual work with students [5].

Despite the variety of studies analyzing differential characteristics of students, there is a lack of generalization of the results of these works. The aim of the article is to analyze current trends in the study of non-cognitive predictors of adolescents' academic performance and to summarize new data obtained in empirical studies of multidimensional typologies of psychological resources of success

in education. The research questions are: 1) What are the current trends in research on adolescents' psychological resources of academic success in the context of person-orientated and differential-typological approaches? 2) What are the possibilities of applying these approaches to the study of adolescents' psychological resources of academic success in psychological and pedagogical practice?

The Person-oriented Approach in Foreign Studies of Psychological Resources of Success in Learning

Before proceeding directly to the analysis of studies, let us consider what resources are singled out by researchers as the most important. In the last 10 years, more and more attention has been paid to non-cognitive predictors of academic achievement [22; 29]. According to meta-analyses, personality traits such as integrity and open-mindedness to new experiences are the most significant and stable predictors of academic achievement [32]. Self-regulation is one of the key factors of academic success throughout learning: its formation at an early stage of learning is an important predictor of academic success in adolescence [30]. Conscious self-regulation is a universal resource for academic performance throughout the entire learning process [6; 8; 11; 21]. Motivation, according to a meta-analysis of 74 studies, makes a moderate significant contribution to academic achievement [22]. School engagement as an external manifestation of motivation [37] is also significantly related to academic success: the higher the engagement, the higher the achievement [28]. The largest relationships in both middle and high school are observed between academic achievement and cognitive and behavioral engagement [37]. Conscious self-regulation is a resource for both engagement and achievement, and mediates the influence of engagement [15; 26].

Let us turn to the analysis of studies of individual manifestations of these psychological phenomena. The most common works analyzing the characteristics of various motivational manifestations of students [3; 17; 38]. Most often, four types of motivational profiles are identified, differing in the expression of internal and external types of motivation [38]. For example, the work of M. Baars and L. Wijnia studied motivational profiles and their relationship to regulatory skills and learning success in a sample of high school students [17]. It was shown that students with strong extrinsic motivation and low intrinsic motivation demonstrate low academic success rates. Another study, also performed on a sample of high school students, was devoted to identifying motivational profiles and analyzing their relationship with engagement and academic success indicators [38]. It was found that for "maladaptive" profiles, engagement did not significantly affect academic performance, whereas for average values of motivation, partial mediation by cognitive engagement of the relationship between social engagement and academic success was found.

The analysis of typological features of school engagement is close to the line of research into various combinations of motivational features as resources of academic performance [18; 34]. Most often, engagement profiles are built in accordance with the model of J. Fredricks, in which it is considered as a construct that includes cognitive, behavioral, and emotional components. For example, in one of the most cited studies in this field, M.-T. Wang and S.C. Peck studied the typological features of school engagement on a sample of 1025 ninth graders [36]. It was shown that the most successful students fall into profiles with high expression of all engagement components, as

well as with a high expression of cognitive and a low expression of emotional engagement. Interestingly, engagement profile features in 9th grade predicted performance in 11th grade, which indicates the predictive power of selecting and analyzing engagement profiles. A more recent study of engagement profiles and their relationship to academic adjustment and university performance was conducted on a sample of Danish high school students in their final year of school [34]. It was found that students with high expression of all types of involvement demonstrated the highest academic performance during the transition to university. There are also works devoted to the analysis of individual typical features of younger adolescents. For example, the work conducted on a sample of students in grades 6, 7, and 8 was devoted to the study of engagement profiles in science subjects, predictors of profile affiliation, and the relationship between profile affiliation and students' achievements [18]. Successful students were more likely (60-70%) to be in moderately engaged groups. Learners with high behavioral engagement were the most successful.

Finally, there is a line of research that attempts to construct regulatory profiles of learners [19; 20; 33]. For example, a study by T.J. Cleary and colleagues examined profiles of self-regulated learning in a sample of 6th and 7th grade students [19]. This work is particularly interesting because contextual variables were also included in the profiles: perceptions of teacher support and school affiliation. Students with adaptive profiles (high regulation and perceived support, and high regulation and medium perceived support) were shown to outperform students with the other two profiles in mathematics scores, while students with low regulation and perceived support performed the lowest on standardized mathematics tests.

A number of modern works are devoted to the study of individual typological characteristics in special educational contexts. For example, a study by D.C. van Alten and colleagues investigated self-regulated learning profiles and their relationship to academic achievement in the situation of the so-called "flipped" type of learning ("flipped learning"), in which students independently study materials before class and then apply them in class [33]. Students' self-regulated learning was analyzed as was their online activity in the process of studying materials for class, as well as by using survey methods. It should be noted that typological groups were distinguished precisely on the basis of online activity indicators. The authors described five profiles that differed in the degree of task completion and the activity towards its fulfillment. It was shown that students who complete independent tasks completely and show a medium and high level of activity have higher performance indicators than students who complete independent tasks incompletely and who show a low level of activity. Another paper was devoted to self-regulation profiles in a blended and online learning situation, and examined their relationship with engagement in learning mathematics and perceived academic control in a sample of 7th and 8th grade students [20].

It was found that the highest rates of engagement and perceived academic control are observed in learners with a high regulation profile.

The articles reviewed in this section confirm the relevance and significance of a multifaceted study of the individual characteristics of students. At the same time, in most studies we do not find any attempts to present a comprehensive picture of psychological resources of different nature of adolescents' academic performance, as the analyzed works are limited to a group of learners and

analyzing differences in the context of individual psychological characteristics. We see a solution to this problem in the creation of typologies of learners based on the relationships of different psychological resources that contribute to academic performance. Thus, it becomes necessary to conduct more complex studies that allow for the creation of such typologies. In this regard, let us turn to the analysis of the differential-typological approach to the study of conscious self-regulation of learning activity, carried out within the framework of research of the laboratory of self-regulation psychology of the Psychological Institute of the Russian Academy of Education.

The Differential-Typological Approach in the Study of Conscious Self-regulation of Learning Activity

Conscious self-regulation (SR) is understood as a reflexive psychological tool of a person that allows him/her to put forward goals and manage their achievement on the basis of the self-organization of various subsystems of primary mental processes, properties, and states that act as a means of implementing his/her activity [5]. Numerous theoretical and empirical studies conducted in the laboratory of self-regulation psychology convincingly demonstrate that the development of conscious self-regulation is a meta-resource, as it not only makes a significant contribution to the productive aspects of achieving any goal, but is also interrelated with other psychological resources, mediating the influence of other cognitive and personal reserves of a person on the solution of a wide range of life problems [6]. The general level of development of conscious self-regulation, along with nonverbal intelligence, acts as a universal resource of academic success, since its contribution (11-20% of the explained variance in different samples) does not depend on the humanitarian, mathematical or natural science area of the academic discipline [7; 24; 25]. The basis of our approach to the study of SR is the concept of its individual style, including ideas about the stylistic features of SR [4; 5]. These include the cognitive operational characteristics of regulatory processes of information processing, which are realized by competence in planning goals, modeling significant conditions of their achievement, programming actions and evaluating their results. Instrumental regulatory-personal properties (independence, responsibility, reliability, flexibility, initiative, etc.) are also stylistic features of SR. In essence, they are subjective qualities characterizing individual strategies of goal achievement regulation.

The individual style of SR is characterized by a regulatory profile which reflects the level of development of all its components. To diagnose a person's regulatory profile and the general level of development of his/her conscious self-regulation, a whole arsenal of multiscale questioning techniques has been created [4]. The profile characterizes, first of all, the operational aspect of self-regulation processes (how a person organizes himself), abstracting from its substantive aspect (what he does it for). This makes it possible to implement a unified approach and compare the features of manifestation of the main regulatory competences in the most different situations and types of activity relatively independently from their external executive structure and from the composition of the mental means realizing it. It is known that a harmonious self-regulation profile serves as a structural characteristic of an effective regulatory style if it is formed at a high general level and its stylistic features are closely interrelated. Style-forming for highly effective harmonious styles is the

expression of subjective (regulatory and personal) qualities of responsibility, perseverance and independence in a person. A self-regulation style, the basis of which is such a profile, will be a prerequisite for mastering a wide range of professions with the availability of special knowledge and abilities. However, it is a prerequisite for effectiveness only in those activities where the requirements for human self-regulation are extremely high (for example, in high-performance sports and politics) [5].

In accentuated styles of learning activity, where the requirements for the harmoniousness of the profile are not high, and its structure is largely determined by temperament and character type, the effectiveness of the style and academic success are largely determined by how developed subjective qualities are. It is their development that creates an opportunity to compensate underdeveloped sides of self-regulation with highly developed ones. For example, for successful students for the operational style the base is flexibility, for the autonomous style – independence, and for the stable style - reliability [5].

The first typologies of learners were created based on the assumption that regulatory profiles characterize the ways of self-organization of goal achievement in people with different types of character accentuation and temperament [4; 5]. These works are an important milestone in the study of individual typical features of self-regulation, as they allowed for the development of a new view of personality dispositions and character accentuations based on the identification of typical profiles of self-regulation of academic activity. Regulatory profiles peculiar to extroverts, introverts, stable and neurotics were identified in a sample of high school students. One of the most important results of this stage of research was the confirmation of the idea of compensation of the weaknesses of regulation (for extroverts and stable - planning, for introverts - modeling, for emotionally labile - evaluation of results) through the development of conscious self-regulation with high subjective activity to achieve goals [5].

Based on this idea, multidimensional typologies of special regulatory and personal resources that ensure the effective achievement of various professional and educational goals were subsequently developed [5]. It was shown that a high level of development of conscious self-regulation is not only a predictor of success in various types of professional and educational activities, but can also compensate the insufficient motivation for goal achievement for both harmonious and accentuated profiles.

Let us consider in more detail the typology of high school students based on the research of individual typical features of the relationship between self-regulation of learning activity, motivation and attitude to learning, and personal dispositions [10]. This typology of students was built on the basis of three selected factors of the interrelation of indicators of the above-mentioned variables and their expression in different groups. At the next stage, individual regulatory and personality profiles of values for each of the three factor indicators were constructed for each respondent. Next, the clustering of these profiles was carried out, which made it possible to identify 5 typological groups of high school students: "optimal", "organized", "weakly motivated", "non-operative", "non-purposeful". Each regulatory-personal type is psychologically characterized and the success rate of passing examination tests is analyzed. Significant regulatory predictors of success at the final exam

were revealed, which were considered in the role of special regulatory resources that allow students to maintain the effectiveness and reliability of their learning activity at the exam. The fact of mediating influence of conscious self-regulation in the system of interrelation of achievement-based motivation and students' exam results was confirmed: conscious self-regulation strengthens the influence of motivation on a student's success at an exam, acting as a resource for mobilization and actualization of the motivational sphere in the specific conditions of achieving an educational goal. It is shown that a high level of development of conscious self-regulation in a situation of decreased motivation is able to perform a compensatory role, which allows students to achieve optimal results on the exam.

Summarizing the analysis of this stage of research, we can single out as the central idea of identifying groups of people who differ in typical SR profiles, with different cognitive and personal reserves and a person's resources that ensure the effectiveness of achieving life goals.

In continuation of this line of research, a study of the differential-typological regulatory and personality resources of academic achievements of middle and high school students was conducted in 2019-2021 [9; 12]. Within the framework of this work, the previously constructed typologies of self-regulation profiles of academic activity were empirically confirmed [5], diverse types of regulation at different stages of learning were described. Harmonious and accentuated types of regulation, typical for students during their studies in middle and high school, were revealed; it was shown how the development of conscious self-regulation manifests itself at the individual typical level in the form of differentiation of the regulatory system and an increase in the variability of profiles [9]. The psychological resources of academic achievement for successful and unsuccessful groups throughout the whole education process in grades 5-11 and the resources of its maintenance depending on the period of education were revealed. Thus, it was shown that the resources of high achievement at all stages of education are a high level of SR and an open-mindedness towards new experiences. At the same time, the significant contribution of individual regulatory competencies and the general level of SR is characteristic to grades 5-6, the contribution of personal dispositions, intrinsic motivation and the general level of SR is characteristic to grades 7-8, and the contribution of intrinsic motivation, open-mindedness towards new experiences and the regulatory and personal properties of initiative is characteristic to grades 9-11 [12]. This study allowed us to identify and comprehensively describe various types of regulation characteristics of students in different periods of schooling, and to confirm at the individual typological level the general regularities of the relationship between regulatory, personal and motivational characteristics as universal and special resources of success of middle and high school students.

At present, the study of differential typological characteristics of students continues within the framework of the Russian Science Foundation project No. 20-18-00470, in which the need to investigate the resource role of conscious self-regulation of learning activity and the dynamics of school engagement in relation to academic achievements of students in middle and high school was justified [1; 13]. For the first time in a Russian sample in a longitudinal study it was possible to reveal the dynamics of conscious self-regulation and school engagement in secondary school, as well as to analyze the nature of their mutual determination in different periods of education [14]. It was shown

that the level of self-regulation development in 8th grade plays a significant resource role in the dynamics of cognitive engagement and cognitive activity in high school [2]. It was revealed that self-regulation resources are a significant non-cognitive predictor of academic performance, and also mediate the contribution of other motivational characteristics (involvement, academic motivation, emotional and motivational attitude to learning) to the academic success of students [26]. For the first time on the basis of longitudinal data, the predictive effects of conscious self-regulation and school engagement and their resource role in the successful passing of final examinations at school were demonstrated. In particular, it was shown that the general level of conscious self-regulation is a predictor of exam success of students in secondary school and has a positive effect on their school engagement [16].

Following the logic of scientific knowledge, at the present moment the transition is made towards the establishment of the regularities of emergence, manifestations and age dynamics of differential differences in the relationship between school involvement, conscious self-regulation and academic performance of schoolchildren through analyzing their individual typological properties. Based on previously obtained data, it is planned to study how the general patterns of determinants of academic performance manifest themselves in individual typological groups of students. The study will make it possible to identify individual profiles of students with different expression of regulatory and personal resources that ensure the effective achievement of learning goals, as well as overcoming motivational and emotional difficulties at different stages of age development. The continuation of research in this vein will allow us to expand and supplement the already existing regulatory typologies and typologies of involvement, comprehensively describing the possible palette of individual manifestations of students in terms of regulatory, motivational and personal resources of academic success at different ages. This is undoubtedly important for solving the current psychological and pedagogical problem of the development of an individual approach in education, as it will provide teachers with important data on the peculiarities of age-specific formation of typological resources of success, personal and professional self-determination, and psychological well-being of students.

Conclusion

In this paper we have analyzed the current trends in the research of psychological resources of adolescents' academic performance in the context of person-oriented and differential typological approaches. The review of modern research has revealed the relevance of studying differential differences of modern adolescents as resources of their academic performance and for the resolution of various age-related problems. As the analysis of modern studies shows, the selected types of profiles of various non-cognitive psychological characteristics (regulatory, motivational, and personality) are quite stable and reproducible. In our context, it is important that most foreign studies emphasize the resource role of self-regulation and school involvement in ensuring students' academic performance. The data obtained in the analyzed studies correlates with the results of the study of general patterns of psychological resources of academic achievement. New trends in these studies have been noted, related to the characteristics of achievement resource profiles and their stability at different ages, as well as the identification of predictive effects of profile type in relation to

achievement. These trends seem to be extremely promising in the context of the tasks of studying individual developmental trajectories and predicting the manifestation of general regularities at the individual level. When analyzing Russian studies, we observe similar trends, and in this article the main subjects of consideration are the possibilities and advantages of the typological approach to studying the manifestations of general regularities of the relationship between regulatory and personal resources and academic success. The results of the research conducted at the Psychological Institute of the Russian Academy of Education with the aim of constructing a comprehensive typology of non-cognitive resources of adolescents' academic success are analyzed. It is shown that the resources of conscious self-regulation are a significant predictor of academic performance, and integrate and mediate the influence of other non-cognitive predictors on it. The results of research on the general patterns of the resource role of mindful self-regulation in maintaining school engagement and academic achievement are analyzed. The predictive effect of mindful self-regulation on academic performance and engagement in the transition to high school is shown. Further development of research in this area is aimed at constructing a typology of students with different expression of regulatory competencies and components of school engagement; analyzing a wide range of regulatory, motivational and personal resources of academic performance depending on age and belonging to a typological group; studying the predictive effect of different profiles on academic performance and school engagement. The results of these studies are not only of fundamental importance, but will undoubtedly be in relevant in pedagogical practice: a) for the development of an individualized approach to learning; b) to provide teachers with diagnostic data on the type of profile of psychological resources on which the academic performance of a particular student depends; c) to develop individualized programs to compensate for the weaknesses of the identified profiles through the development of conscious self-regulation of achieving learning goals.

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Conscious Self-Regulation and Psychological Well-Being as Resources for Academic Success in Young Adolescents: A Structural Model

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The problem of psychological resources of academic achievement is the actual problem of psychology and pedagogy. In the present study on the basis of V.I. Morosanova's resource approach to conscious self-regulation and the results of empirical researches the model of relationship between conscious self-regulation of academic goals achievement, psychological well-being and academic performance in young adolescence was verified. Sample: fifth grade students (N=234, mean age M=11,00, SD=0,28). Research methods: V.I. Morosanova's questionnaire "Self-regulation style of learning activity SSUD-M"; "Scale of manifestations of psychological well-being of adolescents"; "Big Five – child version"; "Attitude to learning in middle and high school". The model of academic success predictors describes the mutual determination of self-regulation, personality (Big Five), achievement motivation, and reveals the direction of cause-effect relationships between variables. It is shown that self-regulation, psychological well-being and achievement motivation are instrumental resources of academic performance. The high own contribution and strengthening of the influence of well-being and motivation on academic achievement provides it key role among its psychological resources. The findings are of practical importance for the organization of psychological support for the education of young adolescents during the transition to the secondary school.

Keywords: conscious self-regulation; psychological well-being; resources; academic achievement; early adolescence.

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Осознанная саморегуляция и психологическое благополучие как ресурсы академической успешности младших подростков: структурная модель

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Исследование выполнено в контексте проблемы поиска психологических ресурсов академической успеваемости – актуальной проблемы психологии и педагогики. В настоящем исследовании на основании ресурсного подхода к осознанной саморегуляции В.И. Моросановой и результатов эмпирических исследований верифицирована модель взаимосвязи осознанной саморегуляции достижения учебных целей, психологического благополучия с академической успеваемостью обучающихся младшего подросткового возраста. Выборка: учащиеся пятых классов (N=234, средний возраст M=11,00, SD=0,28). Методы исследования: опросник В.И. Моросановой «Стиль саморегуляции учебной деятельности ССУД-М»; «Шкала проявлений психологического благополучия подростков»; «Большая пятерка – детский вариант»; «Отношение к учению в средних и старших классах школы». Модель предикторов академической успеваемости описывает особенности взаимной детерминации саморегуляции, личностных свойств (Большая пятерка), мотивации достижения, раскрывает направления причинно-следственных связей между переменными. Выявлено, что осознанная саморегуляция, психологическое благополучие и мотивация достижения являются значимыми предикторами успеваемости и в этом смысле могут быть признаны психологическими ресурсами успеваемости. Высокий собственный вклад осознанной саморегуляции в успеваемость и ее медиаторные эффекты, усиливающие влияние благополучия и мотивации, обеспечивает ей ключевую роль среди психологических ресурсов успеваемости. Полученные данные имеют практическое значение для организации психологического сопровождения обучения младших подростков на этапе перехода в основную школу.

Ключевые слова: осознанная саморегуляция; ресурсы; психологическое благополучие; академическая успеваемость; младший подростковый возраст.

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Introduction

The theoretical basis of the study is the resource approach to conscious self-regulation, which is based on the idea of self-regulation as a significant resource of a person setting and achieving

subjectively accepted goals of activity. Self-regulation is realized through a system of regulatory competencies (setting goals, the modeling of significant conditions for their achievement, the programming of actions, the evaluation of results) and a specific set of regulatory-personal properties (flexibility, independence, reliability, responsibility), the individual originality of the development of which forms the overall level of self-regulation [5; 6]. Psychological well-being (PW) in this study is understood from the perspective of the eudemonistic approach, which allows to consider this phenomenon through the expression of such characteristics as self-acceptance, positive relationships, purposefulness, autonomy, etc. [24].

In the modern era of growing uncertainty, the mental well-being and health of students is a concern for parents, educators and psychologists. At the same time, the mastering of subject competencies is not losing its value. The problem of simultaneously maintaining psychological well-being and academic performance requires the attention of specialists and is becoming increasingly relevant. Research results leave no doubt that students with a high level of life satisfaction have a significant advantage over their peers with a low level of life satisfaction. This concerns, first of all, academic performance, engagement, academic self-efficacy and social adaptability [11; 28]. That is, we are talking about a harmonious combination of high performance and high psychological well-being, which, unfortunately, is not available to all students. Often excellent grades contradict psychological well-being and, moreover, are associated with its lower level [18]. Among the frequently cited reasons are increased academic pressure, a high importance of grades, the pace of learning, an overloaded curriculum, etc.

Academic achievement, while remaining the main integral indicator of school success, serves as a source of student satisfaction throughout all years of schooling and has a significant impact on the life of schoolchildren [4]. If earlier the circle of predictors of academic performance was delineated by various intellectual properties [22], nowadays it includes non-cognitive, emotional and situational factors [3]. There is a demand for research that focuses on psychological resources, the development and control of which in everyday school practice can lead not only to improved academic performance but also to increased well-being [27]. In scientific terms, this leads to the expansion of the range of studied variables that can act as predictors, mediators, and moderators of the relationship between academic performance and the well-being of students of different ages [12; 14].

It is shown that academic performance and well-being are determined by a large number of regulatory, motivational and personal factors, some of which are in the stage of development [1; 9; 16; 31]. That is why one of the main factors controlled during the transition from primary to secondary school is the age of the student. For example, in the 4th grade, personality traits that serve as the universal resources of psychological well-being and academic performance are: first of all, high extraversion and low neuroticism. In the fifth grade, the general level of conscious self-regulation becomes such a resource. We have previously shown that the underdevelopment of such special regulatory resources as cognitive regulatory competencies - programming, flexibility and responsibility - is a limitation to achieving high levels of performance and well-being. In the 5th grade, the role of personality traits remains, but their contribution is more significant in groups with a medium and low expression of the studied indicators. In 6th grade, the contribution of self-regulation and achievement motivation increases significantly [23]. In addition, Clarke showed that hedonistic (subjective) well-being is critically important for academic performance in elementary school, while

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eudemonic (psychological) well-being is critical for secondary school students [14].

In addition, depending on age, on the one hand, psychological well-being can be a significant factor in the development of self-regulation and be a resource for academic success, and on the other hand, self-regulation can be a resource for both well-being and academic success [23]. Similarly, at different age periods, psychological well-being can be both a significant predictor and a consequence of academic success [26]. It has been shown that despite the reciprocal nature of the relationship, the level of psychological well-being has more pronounced significant correlations with the specificity of self-regulation development than with indicators of academic performance [9].

The complex nature of relationships, the age factor, the presence of direct and mediating effects requires the construction of structural models that reflect the specificity of the mutual influences of the studied properties. The size of the variables' contributions to academic performance and well-being will allow for the identification of key factors that ensure the achievement of the goals set – the competence and health of students.

The purpose of this study is to substantiate the theoretical model of the relationship between conscious self-regulation of achieving academic goals, psychological well-being and academic performance of students, as well as the empirical verification of this model on a sample of younger adolescents (fifth graders). The choice of this group of respondents is explained by the difficulties of adaptation of fifth-graders to the known new developmental situation (an increase in the number of subjects, changes in the forms of interaction, increased requirements for discipline and self-organization). All these factors can have a negative impact on academic performance and well-being. In this case, it is important to identify the key resources for maintaining the studied properties. Thus, the theoretical basis for the development of this model is the following empirical evidence:

- on the significant links of self-regulation with both psychological well-being and academic performance of learners;
- on the reciprocal nature of the relationship between psychological well-being and academic performance at different stages of learning;
- on the significant personal and motivational predictors of academic performance and well-being.

Research Methods

Multiscale questionnaire "Self-regulation style of learning activity SSUD-M (2017)" (V.I. Morosanova, I.N. Bondarenko); "The scale of manifestations of psychological well-being of adolescents" (R. Masse, C. Poulin, C. Dassa, J. Lambert, S. Belair, A. Battaglini) - adaptation of V.I. Morosanova, I.N. Bondarenko, T.G. Fomina (2018). Morosanova, I.N. Bondarenko, T.G. Fomina (2018); The "Big Five Questionnaire - Children version" (BFQ-C), Russian version adapted by S. B. Malykh, T.N. Fomina (2018). S.B. Malykh, T.N. Tikhomirova, G.M. Vasin (2015); the "Attitude towards learning in middle and high school" method (modification of the "Methodology of diagnostics of academic motivation and emotional attitude towards learning in middle and high school" by A.D. Andreeva, A.M. Prikhozhan).

Correlation analysis and structural equation modeling were used for statistical data processing. For the statistical analysis of data, we used the IBM SPSS Statistics software package, version 26: the analysis of primary statistics (mean values, standard deviations, etc.); correlation analysis; structural modeling was performed using the AMOS 23 program.

To evaluate the model, we used the following agreement indices and their permissible values for accepting the model as fitting the data: Chi-square / $df < 2$; $p > 0.05$; $GFI > 0.95$; $CFI > 0.95$; $RMSEA < 0.05$; PCLOSE not lower than 0.1.

The study sample consisted of 5th grade students of municipal general education institutions of Moscow and Kaluga - 234 students (47% girls, mean age $M=11.00$, $SD=0.28$).

Earlier, on the basis of longitudinal data, we analyzed regulatory, personal and motivational predictors of academic performance in fourth and fifth grades for groups of students with different dynamics of psychological well-being. It was revealed that it is the instability of well-being that indicates the insufficient development of conscious self-regulation in pupils [7]. The creation of a general structural model of predictors of academic performance of fifth-graders summarizes the three-year study of the determinants of school success of younger adolescents. Correlation and regression relationships do not allow for the reflection of the complex nature of mutual determination of personality traits, motivation and self-regulation. Structural modeling offers an opportunity to identify the key resources for academic achievement and well-being based on the nature of variable relationships and the size of the contributions towards academic achievement.

Results of the Study

The model includes indicators correlated with psychological well-being and academic performance (see table). For clarity, the table presents data only on integral indicators. The existing correlations for individual scales are described in more detail in our articles published earlier [1].

Table

Descriptive Statistics and Correlations Between Self-Regulation Indicators, Personality Traits, Motivation, Psychological Well-being and Academic Performance

Indicators	<i>M (SD)</i>	1	2	3	4	5	6	7	8	9
1. Academic performance	4,28 (0,43)	1								
2. Psychological well-being	93,94 (16,31)	0,34	1							
3. Conscious self-regulation	29,78 (8,58)	0,39	0,57	1						
4. Extraversion	34,89 (10,55)		0,38	0,35	1					
5. Benevolence	37,39 (11,62)	0,15	0,38	0,38	0,85	1				
6. Integrity	35,47 (11,80)	0,19	0,41	0,51	0,83	0,86	1			
7. Neuroticism	23,81 (8,02)		-0,29	-0,30	0,22	0,16		1		
8. Open-mindedness	37,03 (12,01)	0,24	0,43	0,47	0,83	0,82	0,88	0,19	1	
9. Achievement motivation	18,99 (3,52)	0,36	0,50	0,48	0,31	0,39	0,39	-0,15	0,44	1

Note: all correlation coefficients are significant at $p \leq 0.01$.

The model includes three latent variables: psychological well-being, self-regulation and personal properties (Personality) (see figure). We note high indices of the theoretical and empirical model ($\chi^2/df=1.39$; $p=0.002$; $SFI=0.923$; $RMSEA=0.04$; $PCLOSE=0.846$). It is shown that conscious self-regulation acts as a key property that determines school achievement. It contributes directly to

academic performance ($\beta = .18$). Achievement motivation, psychological well-being, and personality traits, in turn, also make a significant contribution, but it is mediating. The mediating properties of self-regulation become evident in the relationship between personality and achievement. The direct contribution of personality traits does not exceed 10%, but, enhanced by self-regulation ($\beta=0.54$) and achievement motivation ($\beta=0.16$), becomes highly significant.

The only indicator showing negative correlations between variables in the model is neuroticism. Research shows that in the case of younger adolescents it can also be positive. The multidirectional contribution of anxiety to academic performance and the well-being of fifth-graders is shown: anxiety as a state has a negative impact on the studied constructs. At the same time, neuroticism as a personality disposition supports the significance of achieving high academic results [1]. At older ages, neuroticism makes a small positive contribution to academic performance, which indicates the learner's interest in the results of his/her efforts.

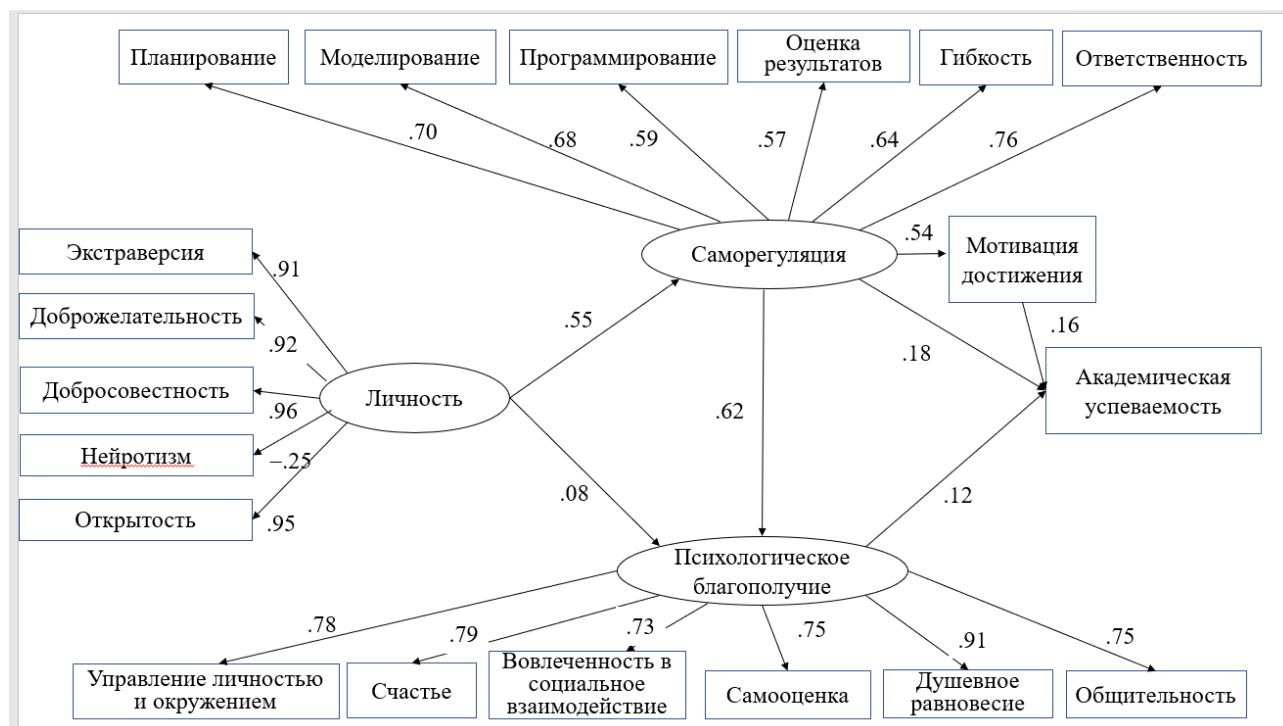


Fig. Regulatory and personality predictors of academic performance in younger adolescents

The contribution of personality traits to psychological well-being is insignificant ($\beta=0.08$). The contribution of conscious self-regulation is much more significant ($\beta=0.62$). Such indicators as Managing one's own personality and environment, Involvement in social interaction and Communication require the setting of goals, planning actions and the evaluation of achieved results, i.e., the active inclusion of basic regulatory competencies.

The created model allows us to demonstrate the direct contribution of psychological well-being to academic performance. We emphasize that it is quite correlated with the direct contributions of such non-cognitive predictors as motivation and self-regulation, which allows us to consider the

well-being of schoolchildren as an important psychological resource.

Discussion of Results

Based on current data on the relationship between psychological well-being, academic performance, and self-regulation, the study proposed a model of their relationship in a sample of younger adolescents. Special attention to this age is determined by the observation that the cheerful enthusiasm of first graders is replaced by the relentless attempts of fifth- and sixth-graders to avoid the effort associated with studying in school. Taking intellectual abilities out of the equation, we set the task of creating a model that, in addition to the usual non-cognitive factors of academic performance - self-regulation and motivation - would also include psychological well-being as an integral emotional assessment of the efforts expended and results obtained.

As a result, a number of patterns have been established that are significant for understanding how the most important indicators of the quality of learning activity and positive functioning are determined at this age period within the framework of a single model.

The findings confirmed the existence of significant relationships between academic performance and psychological well-being. Meta-analyses show that in early adolescence (10-14 years old) there is usually a positive relationship between psychological well-being and academic performance, with various contextual conditions playing an important role [10]. Social interaction, teacher support, and the general psychological climate in the classroom are significant mediating factors [20]. However, there is a growing number of studies that clearly show the influence of self-regulation on both well-being and academic performance [9; 16; 30]. The created model also leaves no doubt in the universal resource role of conscious self-regulation in achieving high academic performance and psychological well-being in younger adolescents.

Another fact established in our study is the resource role of psychological well-being for academic performance of younger adolescents. In scientific literature there is much discussion on this issue [12; 14]. The main pathos of this discussion is in finding an answer to the question of what influences what: schoolchildren's well-being leads to higher academic performance or, on the contrary, academic performance is the basis of students' psychological well-being. Researchers propose a consensus: it is necessary to consider reciprocal relationships of these phenomena. Within the framework of the self-determination theory, it is substantiated that a high level of well-being contributes to increased motivation because academic success allows for the satisfaction of the basic need for competence in learners [20]. However, our model does not support this finding. It is likely that the significance of this relationship will manifest itself at later ages, which will require a separate study.

If we consider the dichotomy of the relationship between self-regulation and well-being, the following should also be taken into account. Conscious self-regulation is formed unevenly, gradually improving in various situations of achieving goals. Let us not forget that it is a complexly organized construct. Its cognitive components - planning, modeling, programming, and the evaluation of results - are formed quite early on the basis of its basic level, represented by executive functions (EF), i.e., regulatory mechanisms of the neurocognitive level. EFs represent a system of cognitive processes that ensure the achievement of significant goals in activity in complex dynamic conditions. Their common feature is their embeddedness in the activity of the prefrontal cortex sections of the brain [13]. Regulatory and personal properties, such as independence, reliability, perseverance, initiative,

responsibility, are formed much later, closer to adolescence, and, the whole system of self-regulation, accordingly, cannot avoid the effects of heterogeneity and heterochrony of development.

Experimental studies give the grounds to believe that the development of self-regulation competencies and the regulatory resources realizing them is an effective approach to develop strategies for improving the psychological well-being of students and the prevention of psychological problems during the period of personal formation and development.

Let's not forget that in early adolescence there is a drop in academic motivation, which inevitably leads to a decline in academic performance, which cannot but affect well-being [21; 31]. Despite this, regulatory resources act as a reliable predictor of both academic performance and PW of adolescents [9; 17], acting as a kind of "stabilizer" of academic motivation, which overcomes qualitative changes during this period. Externally motivated behavior, represented by the motivation of parental respect, introjected and externalized motivation, is replaced by internal motivation - cognitive, self-development and self-esteem motivation. According to researchers' data, it is necessary to take into account the significant changes that have occurred both in the structure and form of motivation of modern schoolchildren and in the mechanisms of its contribution to academic success. Thus, it is shown that the leading motive of schoolchildren is the desire to get good grades, but this motivation is not uniquely related to academic achievement. In addition, in general, a negative dynamic of learning motivation of modern children has been found, which is expressed in a decrease in cognitive activity, the levels of perceived controllability, self-efficacy, involvement, etc. [2]. That is why we found a mediating significant contribution of achievement motivation in the data of our study. This once again confirms the fact that motivation without the "support" of the regulatory resource cannot fully ensure goal achievement. We note that if we draw parallels with professional activity, we can consider the job satisfaction of professionals as an analog of the psychological well-being of students. Such professionals are characterized by better physical and mental health, they master professional skills and abilities faster, more often demonstrate samples of active social and civic behavior [8]. They are characterized by a higher motivation to work, high productivity and involvement in work with pleasure from the process and the results of work [26]. It is in the age of younger adolescence that these complex relationships are laid down, which in the future will be the basis for the successful and harmonious in terms of the balance of work and leisure in professional development.

Thus, the created and empirically verified model confirms the theoretical principle that conscious self-regulation in early adolescence acts as a meta-resource for the success of learning activities and other important indicators of life activity and is a necessary condition for maintaining the psychological well-being of adolescents in this difficult age period.

Conclusion

The results of the study of the relationship of psychological well-being, motivation and conscious self-regulation of younger adolescents with academic success were summarized. Based on the available contemporary data of cross-sectional studies, a structural model that specifies the particular qualities of mutual determination of these constructs, and which reveals the direction of causal relationships, was proposed. It was found that conscious self-regulation is a necessary significant resource for maintaining both academic performance and the well-being of adolescents. The resource role of psychological well-being and achievement motivation in relation to academic

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achievement was also revealed, which may reflect a peculiar social situation of development characteristic to younger adolescents and caused by the particular qualities of the transitional stage of education (from primary to secondary school). The high personal contribution of conscious self-regulation to academic performance and its mediatory effects, which enhance the influence of well-being and motivation, provide it with a key role among the psychological resources of academic performance. The findings are valuable for planning practical work with younger adolescents aimed at supporting academic motivation, psychological well-being and academic performance.

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Sex Differences in Media Use in 6–7-year-old Children

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This investigation aims to study the features of the use of digital devices by preschool children depending on sex. The results of an interview with 495 children (50% girls) aged 6-7 (M=63,6 months, SD=4,7 months) from Moscow kindergartens are presented. The interview contains questions about the frequency of digital devices use and about familiar and favorite digital leisure activities. The results of the study demonstrate that boys use digital devices more often than girls. Girls use digital devices in more varied ways than boys, using digital devices more often for drawing, communication and taking pictures. Boys are more likely than girls to have videogames as their favorite digital activity. The results suggest that girls, with the help of digital devices, are more likely to explore the space of culture, and their way of digital leisure time is more conducive to the self-regulation development. The conclusion from this result is that parents, educators, and psychologists should pay special attention to ensure that boys do not exceed the norms of screen time and get acquainted with the various possibilities of digital devices, in addition to games.

Keywords: preschool age; digital devices; cultural-historical approach; interviews; sex differences; screen time; self-regulation.

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Особенности использования цифровых устройств современными мальчиками и девочками 6-7 лет

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Данное исследование было направлено на изучение особенностей использования цифровых устройств дошкольниками в зависимости от пола. Представлены результаты интервьюирования 495 детей (50% девочек) в возрасте 6-7 лет ($M=63,6$ мес., $SD=4,7$ мес.) из детских садов города Москвы. Интервью содержало вопросы о частоте использования цифровых устройств, о привычных и любимых вариантах цифрового досуга. Показано, что мальчики пользуются цифровыми устройствами чаще, чем девочки. Девочки пользуются цифровыми устройствами более разнообразными способами, чем мальчики, чаще используют цифровые устройства для рисования, общения и создания фотографий. У мальчиков по сравнению с девочками чаще любимым цифровым занятием являются видеоигры. Полученные результаты дают возможность говорить о том, что девочки при помощи цифровых устройств в большей мере осваивают пространство культуры. Так, присущее девочкам менее частое по сравнению с мальчиками использование цифровых устройств и использование их в качестве культурных средств более благоприятно для развития саморегуляции. По результатам работы сделан вывод о том, что родителям, педагогам и психологам стоит уделять особое внимание тому, чтобы мальчики не превышали нормы экранного времени и знакомились с различными возможностями использования цифровых устройств помимо игр.

Ключевые слова: дошкольный возраст; цифровые устройства; культурно-исторический подход; интервью; половые различия; экранное время; саморегуляция.

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Introduction

The digital space is one of the important sources of socialization of modern children [2; 5]. While in early childhood digital activities are mainly carried out with the knowledge and under the control of parents, from the age of preschool children start using tablets, smartphones, computers, TV, or digital devices (hereinafter referred to as DD) independently. Most research has focused on how the use of DD is related to the cognitive and emotional and personal development of preschoolers. A particularly significant research topic is the study of how the use of DD is related to the development of self-regulation. After all, from the point of view of the cultural-historical approach, it is self-regulation that is the key indicator of mastering higher mental functions, i.e., is an indicator of mastering cultural tools. However, before we talk about the influence of DD on the development of preschoolers, it is important to study the content and specifics of their digital leisure time. At the moment, such characteristics of children's use of DD are poorly studied and are rarely the focus of researchers' attention [6]. Understanding the characteristics of DD use is necessary because it provides an opportunity for a differentiated analysis of the impact of these characteristics on the development of a child, which, accordingly, opens up the possibility to choose more favorable options of digital leisure activities for his/her development. For example, it has been shown that the frequency of DD use is inversely related to the level of development of most components of regulatory functions (auditory working memory, cognitive flexibility, and inhibitory control) in 6–7-year-old children [1]. In the same study, it is shown that children who use DD for communication have higher levels of cognitive flexibility and inhibitory control than children who do not use DD for communication [1].

When choosing an optimal strategy to develop for the use of DD, it is important to take into account the gender of preschoolers, because gender is a factor that can significantly influence the specifics of the child's use of DD [15]. A large number of studies have shown that from 3-4 years of age, boys already have more screen time and frequency of DD use than girls [9; 15; 18; 20; 22]. Gender differences in preferred types of digital leisure activities for preschoolers are practically not studied [15], while for adolescence this issue is actively considered - what particular qualities boys and girls have in choosing video games and in social networking behavior are often studied [15; 16; 21]. From the point of view of the cultural-historical approach, it is the contents of digital activities and content that is extremely important to study, because through them a child learns cultural norms. Within the cultural-historical approach, the role of parents in how children learn the digital space is of great importance. It can be assumed that the digital activities of preschool boys and girls differs significantly because, depending on gender, parents may choose different video games and cartoons for their children, may discuss with the child his or her digital experience in different ways, and may organize children's activities, other than digital activities, in different ways.

In the logic of the cultural-historical approach, which is the methodological basis of this work, DD can be considered as multidimensional means [3]. In L.S. Vygotsky's doctrine, cultural tools are psychological tools with the help of which a person makes an impact on someone else's or his/her own behavior. L.S. Vygotsky emphasized that the system of cultural tools is a fundamental factor determining the development of children: "The creation and use of artificial stimuli as auxiliary means for mastering one's own reactions and serves as the basis for that new form of determinability of behavior, which distinguishes higher behavior from elementary behavior" [3, p. 90]. Based on the idea of cultural tools, two types of DD use have been identified: DD as a cultural tool and DD as entertainment [19]. Examples of using DD as a cultural tool are communication, learning and creativity with the help of DD, the use of DD for orientation in space and time (navigator, timer, calendar, etc.), using DD for organizing one's own activities (notes, reminders, planner, etc.) [19]. In these cases, DD acts as a psychological tool for regulating one's own or others' behavior, which is a sign of the manifestation and development of arbitrariness [3]. The use of DD as a cultural tool implies the participation of an adult, without whom the child will not be able to learn and master culturally mediated ways of using DD. At the same time, the preschooler does not need an adult to master the second type of DD use, i.e., to understand how to use DD as entertainment, because the entertainment possibilities of DD are clear from the properties of these devices [18]. When a child uses the DD as an entertainment tool (for video games, watching cartoons and other video content), the only purpose of this activity is to get enjoyment, i.e., there is no direct development of arbitrariness and mastering of the cultural space. This typology of DD use is fundamentally new, so there is still little information on the gender differences in preschoolers' use of DD as a cultural tool and use of DD solely for entertainment.

Thus, the first research question of this paper is: are there differences between boys and girls in the regular and favorite kinds (e.g., communicating, playing video games, watching cartoons, drawing, learning with DD, etc.) and types (using DD only for entertainment and using DD as a cultural tool) of digital activities? The second research question is: are there differences between boys and girls in how often they use DD? Based on the results of other studies [9; 15; 18; 20; 22], a hypothesis can be made regarding the answer to the second question: boys probably use DD more often.

The novelty of this study is that information about children's use of DD was collected by interviewing the children themselves, whereas information is usually collected from the parents of preschoolers. Parents' responses are a less reliable source of information because, firstly, parents do not fully control preschoolers' digital leisure time. And secondly, parents may give socially desirable answers. In addition, children's digital leisure time is examined in the cultural-historical paradigm, from the position of comparing the use of DD as a cultural tool or as entertainment, which is also a new prism of analysis for this topic.

Methods

Sample. The study involved 495 children (50% girls) aged 6-7 years ($M=63.6$ months, $SD=4.7$ months), pupils of preparatory groups of municipal kindergartens in Moscow. The parents of 76% of children estimated the level of their family's wealth as average, 16% - above average, 8% - below average. The parents of 93% of children have a higher education.

Methods. To study the peculiarities of modern preschoolers' use of DD, a semi-structured interview with children about their use of DD was conducted. The following are the interview questions that will be discussed in this article:

1. How often do you use a computer, tablet, mobile phone?
2. What do you usually use the computer, tablet, mobile phone for?
3. What is your favorite thing to do on your tablet, phone, computer?

Study Procedure. Informed parental consent was obtained in advance for the children to participate in the study. Each child was interviewed individually, in a quiet room in the kindergarten. Usually, it was a bedroom or a psychologist's office. The interview was conducted by a trained professional. The interview questions were asked in the same order, with the same wording, but, if necessary, the specialist could ask clarifying questions and clarify something that the child did not understand.

The children's answers to the interview questions were recorded on a tape recorder, and then the audio recordings were transcribed. After that, the children's detailed answers to each question were categorized. For question No. 1 about the frequency of DD use, the following response categories were identified: "Every day", "Several times a day", "On the weekends", "Once a week", "Less than once a week". For questions No. 2 and No. 3 about types of activities with the help of DD, the following response categories were identified: "Video games", "Communication", "Watching cartoons", "Watching videos", "Searching for information on the Internet", "Listening to music", "Taking photos", "Viewing photos", "Education", "Orientation" (in time and space), "Drawing". Each child's response to the questions about the types of activities with the help of the DD was categorized into one of the three types identified in terms of differentiating the ways in which the DD were used as cultural tools or for entertainment. So, if a child gave answers only from the categories "Video games", "Watching cartoons", "Watching videos", then this type of DD use was labeled as "Using DD for entertainment only". If, on the contrary, the child named any other response categories other than these three, then his/her type of use was labeled as "Using DD only as a cultural tool". If a child named response categories belonging to both types, his/her response was labeled as "Using DD both as a cultural tool and for entertainment".

Results

The chi-square test was used to compare the frequency of boys' and girls' use of DD. It is shown that more boys than girls report that they use DD every day (see Table 1). At the same time, more girls report that they use the DD about every other day (see Table 1).

Table 1

Distribution of Children's Answers to the Interview Question "How Often Do You Use a Computer, Tablet, Mobile Phone?" (N=333)

	Boys, N=169	Girls, N=164	p-level
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Every day*	69,8%	50,6%	0,000
Several times a day*	16,6%	30,9%	0,003
On the weekends	5,9%	9,8%	0,192
Once a week	5,9%	7,3%	0,607
Less than once a week	1,8%	1,8%	0,970

Notes. * - statistically significant differences between groups, p-level \leq 0.05.

The chi-square test was also used to compare the ways of using DD by boys and girls. Answering the question about what they usually use DD for, more girls than boys said that they use DD as a cultural tool: for communication, photographing, drawing (Table 2). At the same time, boys more often use DD only for entertainment - for playing games and watching video content (Table 2). Thus, girls more often use DD in more diverse ways, including as cultural tool.

Table 2

Distribution of Children's Answers to the Interview Question "What Do You Usually Use a Computer, Tablet, Mobile Phone For?" (N=366)

	Boys, N=184	Girls, N=182	p-level
Video games	84,2%	76,4%	0,058
Communication*	18,5%	31,3%	0,004
Watching cartoons	27,7%	30,8%	0,521
Watching videos	13,6%	15,9%	0,527
Searching for information on the Internet	2,7%	3,8%	0,544
Listening to music	1,6%	1,6%	0,989
Taking photos*	3,8%	11,5%	0,005
Viewing photos	2,2%	3,8%	0,349
Education	9,8%	15,4%	0,106
Orientation (in time and space)	1,1%	1,6%	0,644
Drawing*	1,1%	5,5%	0,018
Using digital devices only as a cultural tool	6,5%	11,6%	0,091
Using digital devices both as a cultural tool and for entertainment*	25,5%	44,2%	0,000
Using digital devices for entertainment only*	67,9%	44,2%	0,000

Notes. * - statistically significant differences between groups, p-level \leq 0.05.

As shown using the chi-square test, answers to the question about a favorite digital activity also differed between boys and girls: boys more often named video games, girls - drawing with the help of DD (Table 3). In addition, overall, girls gave more frequent responses from the category "using digital devices only as a cultural tool" and boys gave more frequent responses from the category "using digital devices only for entertainment" (Table 3).

Table 3

Distribution of Children's Answers to the Interview Question "What is Your Most Favorite Activity Using a Computer, Tablet, Mobile Phone?" (N=366)

	Boys, N=184	Girls, N=182	p-level
Video games*	68,8%	53,8%	0,004
Communication	2,3%	5,5%	0,116
Watching cartoons	15,9%	21,4%	0,181
Watching videos	11,4%	10,4%	0,779
Searching for information on the Internet	0,6%	1,6%	0,331
Listening to music	0,6%	2,7%	0,108
Taking photos	2,3%	3,8%	0,388
Viewing photos	2,2%	3,8%	0,349
Education	5,1%	4,4%	0,749
Drawing*	4,0%	11,0%	0,012
Using digital devices only as a cultural tool*	11,9%	25,3%	0,001
Using digital devices both as a cultural tool and for entertainment	2,8%	3,8%	0,597
Using digital devices for entertainment only*	85,2%	70,9%	0,001

Notes. * - statistically significant differences between groups, p-level \leq 0.05.

Discussion of Results

The study aimed to explore the differences in boys' and girls' responses about how often they use DD and the types of digital activities they prefer. Also, the children's responses about the types of activities using DD were analyzed in terms of the typology of DD use - using DD as a cultural tool or for entertainment.

It was shown that boys use DD more often than girls. This result confirmed the initial assumption and data from other studies, which showed that boys have more screen time than girls [9; 15; 18; 20; 22]. This result can be explained by the characteristics of raising children depending on gender: parents more often offer girls alternative leisure activities unrelated to games and, in particular, to games in DD [15]. The study by Sowmya and Manjivani shows that the screen time of boys and girls does not differ on weekdays, but on weekends the screen time of boys is higher [20]. This result confirms the important role of parents: parents tend to spend time with their children on weekends, which means that they are the ones who determine the child's weekend routine, including the duration of screen time. In this study, it was shown that parents perceived girls' screen time to be easier to control than boys' screen time, and that boys were more likely to express negative emotional reactions when it was necessary to finish the use of DD [20]. It can be assumed that preschool boys spend more time with DD and react so strongly to the end of DD use, because at this age, boys' regulatory functions develop more slowly than girls' [7]. Perhaps because of this, it is easier for girls than boys

to switch to other activities from digital leisure time and comply with screen time limits. However, this assumption needs empirical verification.

The current study showed that girls are more likely to use DD for communication, taking pictures, and drawing. Girls are more likely than boys to cite drawing as their favorite digital activity, and boys are more likely to cite video games as their favorite digital activity. The overall trend is that girls are more likely than boys to use DD as a cultural tool, and boys are more likely than girls to see DD as entertainment only. This result is consistent with those works that show that the gender of the preschooler plays a role in how parents organize their child's leisure time [4; 12; 15]. According to a survey of 1936 parents of preschoolers, both fathers and mothers are more likely to play a variety of active games with their sons than with their daughters, and the opposite pattern is true for modeling, reading, and drawing [4]. In a survey of 1012 parents of children aged 3-5 years old, it is shown that parents are more supportive of daughters' reading than sons' reading and more often discuss reading with girls [12]. Thus, we can conclude that in the organization of digital leisure activities of preschool children by their parents the same gender-related trends as in other types of shared leisure activities is observed.

Due to longer screen time, boys are at risk of forming dependence on DD [8; 14]. Also, long screen time is a risk factor for problems with self-regulation [9; 10; 17], which is crucial for a child's readiness for school. Moreover, it has been shown that girls on average have an advantage over boys of the same age in school readiness - for example, girls on average have higher levels of self-regulation, literacy, and other pre-academic skills [6; 13]. This may be related, among other things, to the particular qualities of the organization of boys' and girls' leisure time. Thus, it is important for parents of preschoolers, and especially for parents of boys, to pay special attention to the fact that children master the cultural space and control screen time with the help of DD for optimal development of self-regulation in their children.

A limitation of this study is the lack of data on children's screen time. This study takes into account the frequency of DD use, but this parameter cannot fully reflect the time a child spends on digital leisure. The question about screen time was not asked as part of the interview because many children of 6-7 years old are not yet able to accurately estimate time in minutes. In the future, it is expected to obtain data on screen time from a survey of parents of the children interviewed. To consider other factors potentially influencing the development of regulatory functions is also a prospect for further research. In addition, it is worthwhile for further research to analyze how different parameters of digital device use are related to each other.

Conclusion

The conducted research allowed us to see the characteristics of the use of digital devices by modern boys and girls. It was shown that girls, compared to boys, are more active in mastering DD

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as cultural tools. Based on this result, it is suggested that the differences are determined by parents' perceptions or behavior towards children of different genders. Understanding the peculiarities of boys' and girls' use of DD will be useful for parents, educators, and psychologists. For example, in the case of preschool-age boys, particular care should be taken to ensure that screen time does not exceed what is recommended for that age, and that boys' digital leisure time consist not only of entertainment, but also of other opportunities to use DD - educational, cognitive, creative. For researchers, knowing the specifics of DD use depending on gender allows for a more accurate and versatile study of the effects of DD on children's cognitive and emotional and personal development in general, and on the development of self-regulation in particular.

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The Importance of Music in the Development of Executive Functions in 6–7-Year-Old Children

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The aim of this work was to study the differences in the development of executive functions in senior preschool children who are systematically engaged in music and those who are not. The study involved 236 children ($M_{age}=78,17$, $SD_{age}=4,3$), 113 of whom additionally engaged in music at additional education centers. To diagnose the level of development of regulatory functions (inhibition, cognitive flexibility, and working memory) subtests of the neuropsychological diagnostic complex NEPSY-II were used. A comparison of averages using the Mann-Whitney U-criterion revealed that children attending music schools have higher measures of auditory working memory, that is, they are better at remembering and correctly reproducing what has been listened to. They are also better able to restrain their behavioral impulses, depending on the demands of the situation, compared to those who do not additionally study music. Thus, the study demonstrated significant differences in the development of some parameters of regulatory functions in children depending on their involvement in music lessons, which emphasizes the importance of children's creative development for the formation of their cognitive abilities.

Keywords: executive functions; inhibition; cognitive flexibility; working memory; preschool age; children; music lessons.

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Роль занятий музыкой в развитии регуляторных функций у детей 6-7 лет

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Целью данной работы было изучение различий в развитии регуляторных функций у детей старшего дошкольного возраста, которые систематически занимаются музыкой и не занимаются ей. В исследовании приняли участие 236 детей ($M_{age}=78,17$, $SD_{age}=4,3$), 113 из которых занимаются музыкой в центрах дополнительного образования. Для диагностики уровня развития регуляторных функций (торможения, когнитивной гибкости и рабочей памяти) были использованы субтесты нейропсихологического диагностического комплекса NEPSY-II. В результате сравнения средних с помощью U-критерия Манна-Уитни было выявлено, что дети, посещающие музыкальные школы, обладают более высокими показателями слухоречевой рабочей памяти, то есть они лучше запоминают и правильно воспроизводят то, что было прослушано. Также они способны лучше сдерживать свои поведенческие импульсы в зависимости от требований ситуации по сравнению с теми, кто не занимается дополнительно музыкой. Таким образом, проведенное исследование продемонстрировало значимые различия в развитии некоторых параметров регуляторных функций у детей в зависимости от их вовлеченности в занятия музыкой, что подчеркивает важность творческого развития ребенка для формирования его когнитивных способностей.

Ключевые слова: регуляторные функции; торможение; когнитивная гибкость; рабочая память; дошкольный возраст; дети; занятия музыкой.

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Introduction

Regulatory functions refer to general cognitive functions that are necessary for the implementation of purposeful behavior and adaptation to various life conditions [3; 4; 12; 28]. Regulatory functions include components such as inhibition, cognitive flexibility, and working memory, which are most actively developed from preschool to adolescence [22; 23; 31; 39]. Despite the fact that the components of regulatory functions have a long-term development perspective that extends into adulthood, the formation of self-regulation is fastest in early childhood [5; 15; 18]. This is due to the fact that prefrontal areas of the brain, which play an important role in the formation of self-regulation, develop structurally throughout childhood. As noted in a study by J. Zuk et al [41], there is a correlation between a decrease in cortical thickness in various brain regions and an increase in the efficiency of performing various tasks to diagnose regulatory functions in children aged five to ten years. However, the developmental trajectories of individual components of regulatory functions differ [8; 10]. For example, inhibition shows rapid improvement at preschool age, whereas this rate slows down in school-aged children [32; 37]. Like inhibition, working memory develops early in life. However, the ability to hold multiple objects in mind or to mentally work with representations develops more linearly and more slowly than inhibition [9]. Compared to inhibition and working memory, the maturation of cognitive flexibility is the slowest. Task-switching is less developed in preschool children because it relies on inhibition and working memory [32; 36]. While preschoolers do well on simple switching tasks, more complex tasks become available only to older children [13; 15; 39].

As many researchers have noted, regulatory functions are critical predictors of academic success, social adaptation, and well-being [6; 11; 17; 21; 27]. Due to the fact that the development of regulatory function components is important for a successful future, there is great potential in developing educational strategies aimed at developing and strengthening these abilities starting from childhood. According to A. Diamond and K. Lee, the performance of regulatory functions can be improved through specially designed programs [19]. Learning should take into account the interests of children and be aimed not only at practicing specific skills, but also at emotional and social development. Moreover, training should be continuous with gradual complication. One of such activities can be purposeful music lessons in centers of extracurricular education [2].

As many researchers note, learning to play a musical instrument can develop children's regulatory functions, as music lessons rely heavily on various components of regulatory functions [7; 14; 16; 20; 25; 29]. For example, in the study by A. Jaschke and co-authors [25] involved 74 children who were divided into a musical, visual arts and a group without additional lessons. As a result of observing the children for 2.5 years, it was shown that children from the visual arts group performed better on visual-spatial memory tasks compared to the other groups. However, scores on tests of inhibition, planning, and verbal intelligence improved significantly in the music group over time, in contrast to the visual arts group and the group with no additional lessons [25]. In a study by I. Roden et al [29], a group of children in the music group was compared with a science group. The authors concluded that the music group increased auditory working memory over a period of 18 months [29].

Thus, the purpose of this study was to investigate the differences in the regulatory functions of six- to seven-year-old children who are systematically engaged in music and those who are not.

Methods and Organization of the Study

Subtests from the NEPSY-II neuropsychological complex [26] were used to investigate the main components of regulatory functions (working memory, cognitive flexibility, and inhibitory control).

Auditory-verbal working memory. The NEPSY-II "Repetition of sentences" subtest was used. The stimuli included 17 sentences of increasing length and complexity. The child was read one sentence and asked to repeat it immediately after presentation. Each correct repetition of a sentence was scored with 2 points.

Visual working memory. The "Memory for Construction" subtest was used. Stimuli included four pictures of a grid with four to eight colored pictures on it. The child was shown the picture for 10 s and then the picture was removed from view. The child selected pictures from a set of cards and placed them in the grid in the same place as previously shown.

Cognitive Inhibition. The "Inhibition" subtest was used. The subtest consists of two blocks: a series of white and black figures (circles and squares) and a series of arrows pointing in different directions (up and down). Two tasks were performed with each series of pictures: a figure-naming task (in this case, the child simply had to name the figures he saw as quickly as possible), and an inhibition task (in this case, the child had to say the opposite of what he saw).

Physical inhibition. The "Statue" subtest was used, which aims to investigate inhibition and the self-control of bodily movements. In this task, the child was required to stand in a specific pose for 75 s without moving or being distracted by external auditory stimuli. For each 5-second interval, errors were recorded, i.e., movements such as eye opening, shaking, etc.

Cognitive flexibility. The "Variable Sorting" subtest was used. Children were required to sort a series of test cards that depicted a red rabbit and a blue boat. They first sorted 6 cards on one dimension (color) and then 6 cards on another attribute (shape). In the third series, the child had to sort 12 cards according to a more complex rule with an additional factor (if a card had a frame, they had to sort it by color, and if there was no frame, they had to sort it by shape).

Sample. A total of 236 children ($M_{\text{age}}=78.17$, $SD_{\text{age}}=4.3$) participated in the study, including 108 boys and 128 girls. All children participating in the study attended the preparatory group of kindergarten. 113 children practiced music in institutions of extracurricular education (children's music schools and children's art schools) in Moscow and Krasnodar. The children studied in the 1st grade of music school and attended classes from 1 to 3 times a week. The classes consisted of directly learning a musical instrument, singing in a choir, and learning musical literacy. Each child had 2 sessions lasting 20-25 minutes. The order in which tasks were presented in each meeting was the same for all children.

Results

Microsoft Excel 2016 and IBM SPSS Statistics 22 programs were used to process the empirical data. As a result of testing the distribution for normality, it was found that the distribution of the sample is mixed (Kolmogorov-Smirnov test), so to further test the hypotheses non-parametric methods of data processing were applied.

Table 1

Descriptive statistics		
Parameters of regulatory functions	Mean and standard deviation of children	Mean and standard deviation of children

	attending music classes	not attending music classes
Cognitive flexibility	M=20,9; SE=2,7	M=18,9; SE=3,5
Visual working memory	M=85,9; SE=21,5	M=79,9; SE=2,4
Auditory-verbal working memory	M=21,5; SE=4,5	M=19,6; SE=4,3
Inhibition	M=10,9; SE=3,2	
Errors	M=11,2; SE=3,5	
Physical control	M=27; SE=3,2	

As a result of analyzing the descriptive statistics of the indicators of children's regulatory functions, it was demonstrated that the indicators of preschool children attending additional music classes are within the norm relative to the indicators of children not attending additional music classes of the same age (Table 1) [1].

Next, we compared the mean scores of regulatory functions according to the gender of the children.

Table 2

Indicators of Regulatory Functions Differentiated by Gender

	Mann-Whitney U-criterion and significance level	Effect size (rank-biserial coefficient)	Gender	N	M	SD
Cognitive inhibition	U=5289,5 p=0,008	0,2	Male	108	10,3	3,2
			Female	128	11,4	3,1
Physical control	U=4857,5 p=0,001	0,253	Male	108	26,5	3,3
			Female	128	27,6	3,1

As a result, it was demonstrated that girls are better than boys at tasks related to controlling their impulses, both physical and cognitive (Table 2). Girls pay less attention to distractions when performing a set task and are able to restrain their impulses longer.

To analyze the differences in the development of regulatory functions in children attending and not attending additional music classes, the mean was compared using the Mann-Whitney U-criterion.

Table 3

Differences in the Indicators of Regulatory Functions Differentiated by Gender

	Mann-Whitney U-criterion and significance level	Effect size (rank-biserial coefficient)	Attendance of music classes	N	M	SD
Auditory-verbal working memory	U=3041 p<0,0001	0,551	Attend	103	23,7	4,1
			Don't attend	123	19,4	3,9
Physical control	U=4346,5	0,339	Attend	103	26,5	3,4

	p<0,0001		Don't attend	123	27,7	3,1
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It was shown that there were significant differences in measures such as auditory and verbal working memory and physical control (Table 3). Children who attend additional music classes are better at memorization and auditory reproduction tasks, and they also find it easier not to react to external stimuli and to restrain themselves if the situation requires it.

Discussion of the Results

The results of the study revealed significant differences in the development of regulatory functions in children attending and not attending additional music classes. It was demonstrated that those who regularly practiced music had higher scores of auditory-verbal memory and physical inhibitory control. Children who take regular music lessons are better at memorizing and reproducing aurally what they have heard. These findings are consistent with the results of other research studies [7; 24]. In our opinion, this is explained by the fact that music training in specialized institutions is associated with frequent listening and aural reproduction of melodies, as well as the repetition of rhythmic series and musical intervals in solfeggio lessons. Such exercises contribute not only to the learning of musical literacy and the development of musical abilities, but also lead to the improvement of regulatory functions, in particular, working memory [33; 34].

In addition, this work showed that children who regularly attended additional music lessons had higher levels of physical inhibitory control. The findings are consistent with the results of multiple studies demonstrating improved inhibition scores in children who attend music lessons [20; 30]. This may be due to the fact that playing a musical instrument implies concentration of attention on the music piece and control of hand and finger movements. At this time, the child actually has to suppress his or her impulsive behavior to be able to play the instrument for an extended period of time. Music lessons also promote the development of inhibitory control, as children must follow the teacher's instructions and generally reflect the modality of the piece of music while learning.

It should be noted that our study did not reveal significant differences in the level of development of cognitive flexibility in children attending and not attending music classes. In our opinion, this may be due to the fact that the children in our study have been practicing music for no more than two years. At this stage, music schools do not yet require a large number of attention-switching tasks, such as adjusting to partners' parts while playing in an ensemble or reading sheet music while playing two-handed parts simultaneously. In addition, according to some studies [13; 40], cognitive flexibility begins to develop at a later age and becomes most active when the child has already mastered certain skills, while in the process of initial learning this ability is of the least importance, unlike working memory and inhibition.

Additionally, significant gender differences in the development of regulatory functions in children aged 6-7 years were revealed. It was shown that girls have higher scores in such parameters as cognitive inhibition and physical restraint. They are more capable, compared to boys, of performing tasks related to the ability to disengage from stimuli that are not relevant to the current task and to concentrate on what is relevant now. In our opinion, these differences may be related to the peculiarities of the development of brain areas that are activated when solving inhibition tasks [18; 23]. Girls also cope better with tasks involving the need to suppress their physical impulses and hold a stationary body position for a given time. This may be due to the earlier and more frequent involvement of girls in social role-playing games that allow children to play the roles of adults in

various life situations and promote the development of general behavioral regulation by suppressing their impulses and following the rules of behavior typical of those or other situations in which an adult is usually found [35; 38]. However, it should be noted that gender differences in the development of regulatory functions are contradictory and are not always confirmed empirically. This is due to other factors that influence the formation of regulatory functions, in particular, features of upbringing, the child's social environment, his/her physical activity, and others.

As for the limitations of this study, it can be noted that we did not take into account other activities of children (e.g., sports or dance, learning a foreign language), characteristics of the family situation (e.g., listening to music together at home, creative activities, use of digital devices) and other factors that may contribute meaningfully to the results. In addition, the study demonstrates only the existence of group differences, but a longitudinal study that considers development characteristics is needed to determine the full impact of music lessons on children's cognitive development.

Conclusion

Thus, as a result of the conducted research, higher indicators of development of such regulatory functions as inhibitory control and auditory-verbal working memory were revealed in children aged 6-7 years who attend additional music classes, compared to children of the same age who do not attend such classes. Since regulatory functions are one of the predictors of a child's success in later life, the results obtained may indicate the need to develop specialized music teaching programs to create conditions that promote the purposeful formation of regulatory functions in children during the period of their greatest sensitivity.

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Mediation of a Teenager’s Experiencing as Predictor of Emotional Self-Regulation of Adolescents with Developmental Delay

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The problem of the development of emotional self-regulation as a process of becoming an independent experiencing in its cultural sign-symbolic mediation is discussed. The results of the study are presented: the process of becoming an independent experience in adolescents with developmental delay. The sample consisted of 42 normotypic adolescents and 25 adolescents with developmental delay. Methods: psychodiagnostic – drawing “My emotional state”, author's questionnaire, composition “The meaning of music in my life”; methods of qualitative data analysis: methods of grounded theory, content analysis. Methods of mathematical statistics: frequency analysis, criterion – Fisher angular transformation. A generalizing conclusion is made that the mediation of the experience of a teenager with developmental delay is largely difficult. Music plays the role of “activation” – strengthening the actual state of a teenager, but the experiencing remains incomplete, since there is only saturation of the immediate bodily-perceived level of it. Low cognitive and reflexive abilities of adolescents with developmental delay do not allow using an artistic image as a means-incentive for “mastering oneself”.

Keywords: emotional self-regulation; mediation of experiencing; adolescents with developmental delay.

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Федосеева А.М., Бабкина Н.В.
Опосредствование переживаний как фактор
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Опосредствование переживаний как фактор саморегуляции подростков с задержкой психического развития

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Обсуждается проблема развития эмоциональной саморегуляции как процесса становления самостоятельности переживания в его культурном знаково-символическом опосредствовании. Представлены результаты исследования процесса становления самостоятельности переживания у подростков с задержкой психического развития (ЗПР). Выборку составили 25 подростков с ЗПР и 42 нормотипичных подростка. Методы исследования: рисунок «Мое эмоциональное состояние», авторская анкета, сочинение «Значение музыки в моей жизни». Анализ эмпирических данных осуществлялся с помощью метода обоснованной теории (B.G. Glaser, A.L. Strauss), контент-анализа, статистических методов: частотного анализа, ϕ^* -критерия углового преобразования Фишера. Делается обобщающий вывод о том, что опосредствование переживания подростка с ЗПР оказывается в значительной степени затрудненным; музыка выполняет роль «активации» – усиления актуального состояния подростка, но переживание остается неполным, поскольку происходит исключительно насыщение непосредственного телесно-ощущаемого его уровня. Низкие когнитивные и рефлексивные возможности подростков с ЗПР не позволяют использовать художественный образ как средство-стимул для «овладения собой».

Ключевые слова: эмоциональная саморегуляция; опосредствование переживаний; подростки с задержкой психического развития.

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Introduction

The formation of emotional self-regulation of adolescents with developmental delay (DD) is one of the most acute problems facing the system of general education. The lack of adequate psychological and pedagogical support of the process of personal development of adolescents with DD leads to social maladaptation of such students [1]. There are studies of adolescents' socialization, its phenomenology, sociology and methods of correction, but they do not provide a sufficiently complete understanding of the basic psychological mechanisms of the formation of self-regulation - emotional and, more broadly, personal - which largely determines the ability to manage behavior, to perform actions based on the cultural values of society [12].

We consider the formation of emotional self-regulation in child and adolescent development as the process of the emergence of independence of experience, and experience is understood as an activity of comprehension of a critical situation in the methodology of the cultural-activity approach (L.S. Vygotsky, A.N. Leontiev, F.E. Vasilyuk). Since the psychic prerequisites for the formation of independence of experience are formed only by adolescence, it is this age that is the most sensitive and socially significant - as a transitional age to adolescence, in which full-fledged subjectivity and independence of experience becomes possible. In available literature, no research has been found on the age specifics of the formation of experience as a higher mental function in adolescents with both normotypical development and intellectual disability, which determines the relevance of this study. The article presents the results of the study, the first part of which was discussed in 2022. [19].

The following provisions served as theoretical bases of the study:

1. Emotional regulation as a component of experience mediation

In Russian psychology, emotional regulation is considered within the framework of the study of self-regulation in general: as the effect of a person's organization of his activity on the basis of the self-organization of various subsystems of primary mental processes, properties and states that act as a means of implementing this activity [14], as regulation of mental states [16], self-regulation of functional states in professional activity [7], in studies of behavior control [17].

Considering emotional self-regulation as a component of the mediation process, we can understand it as the dynamics of transition from lower to higher affective formations, directly related to the change in the relationship between affect and intellect [6]. Mediation can be defined as arbitrary meaning-making, the management of one's own meaning sphere through its *realization and restructuring* [8]. Consequently, we consider emotional self-regulation as an effect of experience becoming independent [20], in which the subject solves a "task of meaning" [3]. [3].

Mediation involves both entering the field of cognitive means and arbitrary regulation - keeping the subject in a situation of difficulty [11]. The adult "holds" the child in a subjective position in relation to his or her own experience - encourages the child to "turn toward himself or herself. The regulatory function of the self-consciousness of the individual the key place where intellect and affect are united. It is from this position - the subjective regulation of emotional behavioral reactions - that a discussion of motivational and meaningful bases is possible.

2. Artistic image as a symbol and means of development of experience-activity of adolescents

Considering the means-stimuli of mediation, we can speak about a certain continuum, on one side of which there are means of symbolic mediation, and on the other - of sign mediation [5; 15]. In mediating natural processes of experience, the symbol turns out to be the most accessible to the

subject cognitive sign-stimulus, which appears to be a means of emotion management, since it fixes even vaguely felt tension [5, p. 53], vague bodily-felt states [6; 18; 20; 21]. The artistic image that connects the sensual fabric of consciousness with its semantic component turns out to be a kind of symbolic form [4; 15].

Speaking in the language of psychotechnics, symbolization is a tool for transforming bodily experiences into a psychic form of a symbol and meaning in co-experiencing the Other [5; 20]. At the moment of symbolization of experience, its *subject* appears - the one who comprehends the "inner flow of impressions". The artistic image of a musical composition for an adolescent turns out to be a means of symbolizing one's own experience [19]. The mediation of natural experience, which occurs when listening to music, manifests itself as a movement from a bodily-felt sensation to meaningfulness, when the word "songs" turns out to be some intermediate result and a means of emotional self-regulation.

Studies of emotional self-regulation of children and adolescents with DD prove insufficient development of self-control of emotions and behavior, as well as an insufficient level of stress resistance [2; 10]; a low level of formation of moral perceptions and moral self-awareness, internal passivity – an insufficient need for self-knowledge and self-development; a weaker development of reflection [9; 10; 13; 20]. It was proved that music (song) is a cultural means of mastering the subject's own experience in normotypically developing adolescents [19]. No studies of sign-symbolic mediation of experience in adolescents with DD have been found.

In the framework of this work, *research questions* were posed about how the mediation of experience occurs in adolescents with DD, and to what extent the autonomy of experience is possible in this variant of development.

Methods and organization of the study

Sample. The study was conducted in February-October 2022 on the basis of general education schools in Omsk (№ 12, № 33), Moscow (№ 657) and special (correctional) school № 522 in St. Petersburg. 67 adolescents participated: 42 normotypic adolescents and 25 adolescents with DD at the age of 14-15 years. The reason for choosing this particular age period was the fact that 14-15 years old is the age at which personal reflection actively develops and manifests itself in the adolescent's self-consciousness.

To investigate the mediation of experience as a factor of emotional self-regulation in adolescents, an *experiment¹* was organized: 1) adolescents were asked to draw their current emotional state in the form of an image (*drawing "My Emotional State"*) and fill in the first part of the *author's questionnaire*; 2) at the next stage, adolescents chose a musical composition and listened to it; 3) at the last stage, adolescents again drew their emotional state and filled in the second part of the questionnaire. 4) The task of depicting their own emotional state and answering the questions of the questionnaire was offered to adolescents as a stimulus for a better realization of the changes occurring to them while listening to musical compositions.

Data collection methods: projective drawing, questionnaire, essay.

The drawing "My Emotional State" was used to realize and express in the image the content of the emotional state with the help of artistic means.

The author's questionnaire was developed by A.M. Fedoseeva based on the theory and practice of

¹ The research design is quasi-experimental

experiential psychotherapy [3; 20]. The purpose of the author's questionnaire: to determine how favorite music affects mood. The obtained data were processed using *content analysis*.

Choice of musical composition. Adolescents were offered to choose one of their favorite musical compositions in their collections in social networks and listen to it in headphones (in-canal). Since the purpose of the experiment was to investigate the individual process of mediating experience, the musical composition had to correspond with the exact experience that was actualized by the participant. In this context, it was not important what kind of music the adolescents listened to; it was their independent choice of music at the moment of actualization of the experience that was important.

Methods for analyzing and interpreting the qualitative data. The *grounded theory method* of B. Glaser and A. Strauss was used to analyze the empirical data (B.G. Glaser, A.L. Strauss, 1967). The method involves a data selection process that combines data collection, coding, and analysis. The *content analysis* method was used to process the questionnaire responses. *Methods of mathematical statistics*: frequency analysis, ϕ^* -criterion, Fisher's angular transformation.

Results of the study

As a result of the experiment, it was not possible to obtain relevant data for comparing adolescents of different groups through the drawing method "My Emotional State": adolescents with DD could not depict their state in the form of an image-symbol (with the exception of 4 people). The comparison of the groups showed that the difficulty of depicting the emotional state in the form of an image-symbol is common for adolescents of this age. Nevertheless, in the group of normotypical adolescents 36 people (85.7%) were able to symbolically represent their emotional state in a drawing before and after the experiment, while in the group of adolescents with DD only 4 people (16.0%) were able to do so; after listening to music, adolescents with DD could only *describe in words*, but could not symbolically represent their state.

This result is reflected in the category "Quality of Change in Emotional State": while all normotypic adolescents indicated that internal changes occurred, 48.0% (12 people) of adolescents with DD indicated that no changes in state occurred.

Table 1 presents the results of changes in the emotional "tonality" of the adolescents' state. While in the group of normotypical adolescents, after listening to the musical composition, the number of participants in a neutral state decreased ($\phi^*=3.400$, $p<0.01$) and the number of adolescents experiencing positive emotions increased ($\phi^*=5.582$, $p<0.01$), in the group of adolescents with DD, despite some increase in positive emotional state, there were no statistically significant changes. It is also important to note that 35.3% of the adolescents with DD were in a negative state at the time of the study, this state in them practically did not change (a negative emotional state remained in 7 out of 8 adolescents).

Table 1

Changes in the Emotional State of Adolescents While Listening to a Musical Composition

Emotional state	Group	Before listening to musical composition, %	After listening to musical composition, %	ϕ^* -Fisher criterion
Positive	Normotypical adolescents	21,4	78,6	5,582**
	Adolescents with	17,6	35,3	1,184

	DD			
<i>Neutral</i>	Normotypical adolescents	35,7	7,1	3,400**
	Adolescents with DD	29,4	23,5	0,391
<i>Negative</i>	Normotypical adolescents	28,6	14,3	1,618
	Adolescents with DD	35,3	35,3	0,0
<i>Not mood, but attitude</i>	Normotypical adolescents	14,3	0,0	–
	Adolescents with DD	17,6	5,9	1,093

Note: ** - $p < 0.01$.

The expressiveness of the images in adolescents with DD draws attention: it either cannot be assessed - the adolescent refuses to depict (symbolize) the state, or the drawings are depicted with a high degree of expressiveness - in terms of symbolism or the quality of the use of artistic means.

Table 2 presents the frequency of the occurrence of categories identified in the interpretive analysis in adolescents. It is necessary to make a remark: 1) the categories obtained during the analysis of the results in normotypical adolescents turned out to be redundant in relation to the results obtained in a sample of adolescents with DD [19]; 2) categories that occur only in the group of adolescents with DD were identified.

Table 2

Comparison of the Frequency of Categories of Experience Change During Listening to Music in Different Groups of Adolescents

Categories		Group of normotypical adolescents, frequency (%), n=42	Group of adolescents with DD, frequency (%), n=25	ϕ^* - Fisher criterion
1. Immersion in the experience	1.1. Psychological defenses: displacement, protective fantasy	6 (14,3)	3 (12,0)	0,273
	1.2 Immersion in natural experience	6 (14,3)	10 (40,0)	2,348**
2. Reasons for choosing music	2.1. Activation of experience-experience	20 (47,6)	7 (28,0)	2,652**
	2.2 Correlation with primary sensitivity: liking the rhythm	0 (0,0)	8 (32,0)	–
	2.3. Personally related: about me, my state of mind, my mood	10 (23,8)	0 (0,0)	–
	2.4. Unreflexive: I like it	0 (0,0)	18 (72,0)	–
	2.5. Reflexive: explaining the reason for it	22 (52,4)	0 (0,0)	–
3. Realization of	3.1. Realization of the experience:	2 (4,76)	0 (0,0)	–

the personal meaning of the experience	figurative living			
	3.2. Leading phrase with decoding of the meaning	18 (42,9)	0 (0,0)	–
	3.3. Leading phrase without decoding of the meaning	2 (4,8)	10 (40,0)	3,670**
	3.4. No realization	4 (9,5)	15 (60,0)	4,533**
4. Quality of state change	4.1. No change	0 (0,0)	12 (48,0)	–
	4.2 Positive dynamics (unreflective answers)	4 (9,5)	9 (36,0)	4,533**
	4.3. No clear emotional dynamic	2 (4,8)	4 (16,0)	1,508
	4.4 Experience of frustration - anger	2 (4,8)	1 (4,0)	0,154
	4.5. Infantile: activation, tension - relaxation, calming down	4 (9,5)	3 (12,0)	0,317
	4.6 Activation: from calmness to activity	4 (9,5)	5 (20,0)	1,188
	4.7. Falling into involuntary experience	0 (0,0)	4 (16,0)	–
	4.8. Infantile: virtual fulfillment of need	5 (11,9)	1 (4,0)	1,192

Note: ** - $p < 0.01$.

Let us disclose in more detail the categories selected in the comparison, emphasizing the characteristic traits of mediating the experience of adolescents with DD.

Category 1. Immersion in the experience

1.1 The activation of direct experience: under the influence of musical intonation, the adolescent immerses into direct experience. Examples of statements: "Music motivates me to do what I want to do...", "If you sing with shouting, it becomes easier...". The difference between adolescents with DD is that in their statements they have no subject whose experiences are activated. This is an unconscious process, and in adolescents' answers we see only the fixating of the results of involvement or actions.

1.2 Psychological defense: protective fantasizing is found in the descriptions of adolescents of both groups. Example: "When I turned on the music, I went back to a marvelous world. And when I listened, it was as if time stopped...". Compared to the active imagination of normotypic adolescents (e.g., compare: "I imagine everyone sitting around the table together in the evening..."), the imagination of adolescents with DD is passive.

Category 2. Reasons for choosing music

In contrast to normotypical adolescents, adolescents with DD give only one reason for choosing a musical composition - "I like it". While normotypical adolescents say that they want to relax or "have fun", as well as get involved in the current experience, adolescents with DD more often cannot realize what exactly they want at the moment of choice, they have no correlation between the mood of the musical composition and their state - 18 (72.0%). Also, adolescents with DD fixate the reason for choosing a musical composition, which is not found in normotypical adolescents, - rhythm: 8 (32,0%).

Category 3. Realization of the personal meaning of the experience

In the group of normotypical adolescents there are different variants - focusing on the key statement of the song's text without interpreting its meaning in the context of their experience (although the questionnaire question stimulates them to do so), focusing with interpretation and a refusal to mediate the natural experience with a word or image. Adolescents with DD do not realize their experiences (there is no reflection of the experience in the answer text) - 15 (60,0%) or a phrase from the song is fixated without deciphering its personal meaning - 10 (40,0%). We assume that adolescents carried out the instruction without listening to themselves: it was more a rational fulfillment of the task rather than engagement in the process of comprehension.

Category 4. Quality of state change

In the group of adolescents with DD, 48.0% of participants indicated that their state did not change in the process of listening to music. That is, music did not act as a means of emotional regulation, did not mediate their experience. It is also important to highlight category 4.7. Falling into an involuntary experience: in 4 (16%) adolescents with DD listening to music led to an unreflective involving natural experience of the current emotional state. Thus, musical intonation induces an almost hypnotic - altered - state of consciousness, when the "music takes them away".

Discussion of the results

The obtained results showed difficulties in mediating their own experiences in both groups of adolescents. Symbolization of experiences is practically inaccessible to adolescents with DD: even the most "simple" and primary way of mediating - the symbol, which appears in preschoolers' games, is difficult as a means of mastering one's own experiences. The correlation of symbols as images, metaphors, and meanings - the words that the adolescents used to describe their experiences - shows that verbal descriptions are conventionally more accessible to the adolescent for reporting his or her state. It can be assumed that this paradox is resolved in the following way: the word is used by the adolescent as a meaning filled with personal significance, but it can also be used as a form of this meaning - without realizing its personal meaning, without trying to use it as a tool for comprehending their unclear, undifferentiated emotional state.

The results of the study allow us to state the fact that musical compositions are not a naturally occurring tool for mediating the experience of an adolescent with DD. The formation of the position of the subject of experience in adolescents with DD does not occur even in a situation stimulated by an adult. Music turns out to be a means of strengthening the bodily-felt emotional state, a protopathic sensitivity: at the level of rhythm, but not emotions and feelings. It can be assumed that this is a consequence of an insufficient cognitive means of self-awareness in adolescents; it can also be a consequence of the fact that the adolescent does not discover in himself the content that can be mediated - there are insufficient reflective abilities, which have not yet emerged as a new formation of age.

Nevertheless, adolescents with DD are as fond of listening to music as normotypical adolescents. Artistic images of musical compositions turn out to be for them a means of saturating the level of immediate experience. Without a developed ability of cognitive control and reflective position of the subject of experience, it is difficult for adolescents to withstand strong emotions, which leads to an inability to conscious emotional self-regulation. An example of the formation of such self-regulation can be the situation when an adolescence *sets a goal* - to cope with his feelings, to calm himself down.

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Conclusion

Thus, we can conclude that the mediation of the experience of an adolescent with DD is significantly impeded. Music fulfills the role of "activation" - strengthening the current state of the adolescent, but the experience remains incomplete, because there is a saturation of the immediate bodily felt sensing level. Low cognitive and reflective abilities of adolescents with DD do not allow them to use stimuli for "mastering themselves". The formation of independence of experience as a condition of personal development and social adaptation of adolescents with DD requires the mediating action of an adult accordingly.

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Pedagogical Support for Development of Learning Activity Self-regulation in High School Students

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The article describes the author's system of pedagogical support for the development of the learning activity self-regulation in high school students educated in specialized classes. Theoretically, the system is based on the structural-functional approach to the study of self-regulation proposed by V.I. Morosanova. According to its principles, the system was designed not only to develop the skills of the learning activity self-regulation, but also to create conditions for their development. As the main pedagogical means aimed at achieving its goals, the program proposes special master-classes on the development of different levels of self-regulation of educational activities, creating the situations of responsible choice related to the students' personal and professional development and assisting to high school students in making their professional choice, consulting on the plans for their personal and professional development. The study had its purpose to verify the effectiveness of the system developed by the authors. An experimental testing was carried out on a sample of 208 high school students educated in specialized classes of Moscow schools. The research methods were selected to measure the levels of development of the operational and regulatory-personal components of self-regulation (V.I. Morosanova's "Self-regulation Profile of Learning Activity Questionnaire"), as well as the value-semantic level of subjective regulation ("Levels of Development of Personality Subjectivity" by M.A. Shchukina and the methodology of A.A. Azbel, A.G. Gretsov for studying the status of professional identity). The results of a comparative study between the experimental and control groups indicate the effectiveness of the developed system of pedagogical support: on average, the relative increase in the levels of the learning activity self-regulation in the high school students was about 20-30%.

Keywords: self-regulation of learning activities; profile education; psychology of choice; pedagogical support.

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Педагогическое сопровождение развития саморегуляции учебной деятельности старшекласников

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В работе представлена авторская система педагогического сопровождения развития саморегуляции учебной деятельности старшекласников профильных классов. Теоретическим основанием для ее разработки послужил структурно-функциональный подход к изучению саморегуляции В.И. Моросановой. В соответствии с ним система проектировалась не только с целью формирования навыков саморегуляции учебной деятельности, но и с учетом необходимости создания условий для их развития. Основными педагогическими средствами, направленными на достижение целей разработанной программы, выступили специальные занятия по развитию саморегуляции учебной деятельности, создание ситуаций ответственного выбора в отношении своего личностно-профессионального развития и помощь старшекласникам при его совершении, консультационная и разъяснительная работа с опорой на планы личностно-профессионального развития. Целью исследования являлось определение эффективности разработанной авторами системы. Экспериментальная проверка осуществлялась на выборке из 208 старшекласников, обучающихся в профильных классах московских школ. Методы исследования были направлены на измерение степени сформированности операционального и регуляторно-личностного компонентов саморегуляции учебной деятельности (опросник В.И. Моросановой «Стиль саморегуляции учебной деятельности»), а также ценностно-смыслового уровня субъектной регуляции (опросник «Уровни развития субъектности личности» М.А. Щукиной и методика изучения статусов профессиональной идентичности А.А. Азбель и А.Г. Грецова). Результаты сравнительного исследования изучаемых параметров в экспериментальной и контрольной группах свидетельствуют об эффективности применения разработанной системы педагогического сопровождения: в среднем относительное увеличение уровней саморегуляции учебной деятельности старшекласников составило около 20–30%.

Ключевые слова: саморегуляция учебной деятельности; профильное обучение; психология выбора; педагогическое сопровождение.

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Introduction

In Russian and European culture and education, self-regulation has always been recognized as the most important quality of a human being, allowing to achieve the most ambitious goals in various aspects of his/her life activity. The results of many years of research have shown the objective significance and practical value of regulatory competencies for the modern professional. In this regard, it seems particularly relevant to develop programs aimed at the development of regulatory skills at the stage of choosing a profession, in the conditions of learning activities, familiar to high school students.

Self-regulated learning (SRL) has been intensively studied in Western psychology since the 1980s. A significant role in the formation of this field was played by the works of B.J. Zimmerman [33]. Many authors emphasized the importance of personal and even ethical components in the processes of self-regulation [31]. Various approaches to the study of this phenomenon were formed, from metacognitive to social constructivist and a number of others.

In Russian studies, the problem of self-regulation development has also been studied from different methodological positions. The works of N.M. Peysakhov [22] occupy a special place. A.V. Bykov [3] and T.I. Shulga [30] studied volitional regulation of activity. In the works of D.B. Elkonin and V.V. Davydov [4] the formation of adequate self-assessment of learning actions on the part of the student was considered as the most important sign of a high level of development of learning activity. Studies of human subjectivity also confirmed the importance of the problem of self-regulation development (V.I. Slobodchikov [27], A.V. Brushlinsky [2], V.A. Petrovsky [23], V.I. Morosanova [15]).

But, undoubtedly, the most famous scientific field, in the context of which the phenomenon of self-regulation is studied, is currently the structural-functional approach (O.A. Konopkin [9], V.I. Morosanova [17], A.K. Osnitsky [20], etc.). The name of V.I. Morosanova is associated with the development of one of the most famous scientific schools belonging to this field. The researcher distinguishes two levels (practically subsystems) of self-regulation: operational and regulatory-personal (in V.I. Morosanova's terminology - subjective). V.I. Morosanova notes the important role of human self-awareness, or, more precisely, of his regulatory functions, in self-regulation [15]. In this study we will rely on the definition of the levels of self-regulation of learning activity which are accepted in this scientific school: "operational" – the manifestation of individual typical features in the style characteristics of self-regulation of learning activity, "regulatory-personal" - personal qualities that ensure the processes of regulation, "value-semantic" – the manifestation of the regulatory function of the student's self-awareness, his value and motivational orientation in learning activity.

The task of creating the conditions for the development of self-regulation has been considered and solved in both foreign and domestic studies. Methods and forms of development of both operational components of self-regulation of learning activity (subject's efficiency in planning goals, modeling conditions, programming, correcting activity and its results) and its personal components were proposed [24].

Both technologies for training high school students in self-regulation, such as "SREP" (B.J. Zimmerman), and technologies that use elements of such training, for example, the technology of teaching mathematics "IMPROVE" (Z.R. Mevarech, B. Kramarski), have been developed. The mentioned Self-Regulation Improvement Program (SREP) is aimed at supporting the self-motivation of secondary school students, expanding their understanding of metacognitive strategies and helping them to master these strategies [32]. The implementation of SREP involves the work of a special coach. An important principle of this program is the actualization of students' ability to manage their life at school [34].

In many respects, domestic researchers used similar methods and technologies of self-regulation development. The technology of mastering self-regulation skills proposed by A.K. Ositsky is based on the gradual complication of a child's actions: from the simple reproduction of an adult's (teacher's) actions to fully independent implementation of all the links of self-regulation [20].

On the basis of the laboratory of self-regulation psychology of the Psychological Institute of the Russian Academy of Education, programs for the development of personal self-regulation and conscious self-regulation of learning activity were developed and experimentally tested in the conditions of the formative experiment. It is shown that the development of conscious self-regulation can be used as a means of increasing the psychological reliability of students' actions in an exam situation and can contribute to the formation of psychological competencies that allow them to ensure the stability of their results on the exam [24; 28].

M.V. Polyantseva emphasizes the role of conscious goals and the independence of the student in the implementation of certain processes of self-regulation of learning activity. M.V. Polyantseva's model of learning activity formation includes components of personal self-regulation, the extensive use of reflexion and the consideration of emotional and motivational factors [25, p. 10-16]. G.M. Kortunov [10] offers a similar technology, but adapted to the specifics of one academic discipline.

The approach of I.V. Lysenko is significantly different. Relying on the concept of V.V. Serikov [26], she offers a technology based on the use of personally oriented situations for the formation of a subjective experience of self-regulation [12]. The author notes that the formation of self-regulation skills is possible through the formation of students' subjective attitude to each component of self-regulation (goal setting, modeling, self-control, etc.) in combination with the mandatory exercise and testing of their abilities. I.V. Lysenko's model assumes a special technology of "accepting" the goal of learning activity by means of "agreement" of the teacher and the student, creation of personally developing situations requiring the manifestation of students' subjectivity. A certain confirmation of the logic used by I.V. Lysenko in the technology developed by her can be the conclusion of D.A. Leontiev that "choice is an integral part of the most different stages of the self-regulation of activity" [12, p. 95]. [12, c. 95].

The work of E.V. Kamaletdinova, which is devoted to the study of how self-organization of learning activities in specialized education contributes to the formation of subjectivity of high school students, is close to our research. The author interprets self-organization as a principle that is a combination of: 1) the process of organizing learning activity in accordance with its structure; 2) the implementation of the subject position of the student; 3) the special nature of interaction between students and teachers [8, p. 13-15]. The main forms and means that the author used in creating her model were modular learning, individual learning plans, providing students with the opportunity to

choose the means and ways of performing activities, lectures, seminars, collective learning, imitation and game situations [8, p. 18-19].

The publications present very different, in their methodological and theoretical bases, approaches to the formation of the self-regulation of learning activity. Nevertheless, we can identify a number of common points in the works of researchers that are essential for the development of technologies and programs for the development of students' self-regulation:

1. Self-regulation of learning activity, as well as the self-regulation processes in general, can be developed in students only when they rely on their own activity. The teacher can only facilitate this process by creating favorable conditions for it, i.e. by using various forms of pedagogical support. And if at the initial stages of this support the directive presentation of activity samples by the teacher is acceptable, then in the future the process of self-regulation development should be based primarily on the personal and value-semantic structures of the child (adolescent) himself.

2. There are serious reasons to believe that the processes of subjectivity development and the processes of self-regulation development are closely related, and, therefore, due to this fact, the developmental technologies that have been used in relation to each of these phenomena can be extended to the other.

3. Despite the fact that psychologists distinguish different subsystems (levels) of self-regulation, in the educational environment, in everyday learning activities the difference between their manifestations acquires a secondary character. Failure in the performance of learning activities for a student is a much more significant fact than the reasons that led to it (whether it is insufficient motivation or unformed self-regulation methods). Therefore, if we set the task of developing a pedagogical technology, it cannot be limited in its subject to only one level (element) of self-regulation, but must cover them in the aggregate.

Thus, the system of support for the development of self-regulation can be developed only as a system of pedagogical (psychological and pedagogical) support, which implies a complex impact on all subsystems of the self-regulation of learning activity.

In developing our system, we relied on the works of Russian authors who studied pedagogical support (L.A. Maximova, S.A. Shaykhulina [13]) and substantially similar technologies performed within the framework of the scientific schools of O.S. Gazman (N.N. Mikhailova, S.M. Yusfin, et al.), the concept of "individual assistance" by A.V. Mudrik, E.I. Kazakova, the concept of psychological support, including in the formation of universal learning actions (M.R. Bityanova [1]), tutoring (L.A. Emelyanova, M.I. Solodkova, I.D. Borchenko [6], A.E. Metlina [14]).

Our proposed system of pedagogical support of students implies the use of certain pedagogical means, oriented both to the formation of skills of self-regulation of learning activity, and to the creation of conditions for the development of regulatory functions of self-awareness.

Let us outline the mandatory conditions for the successful functioning of the proposed pedagogical system. There are two of them: the use of the model of specialized education based on individual educational plans (every student should have such a real opportunity) by the school, and the formation of an independent consulting structure that would take over the organization of pedagogical support (which includes the preliminary training of teachers and other specialists to work on this program).

Let us narrow down the main principles of the system of pedagogical support for the development of self-regulation of learning activity in students.

1. The organization of special classes on the development of self-regulation of learning activity with students in microgroups organized for each academic discipline (on average from 3 to 5 groups per class). The general logic of these classes is the actualization of all the main stages (planning goals, modeling conditions, programming, correcting activity and its results) of solving typical, first of all, educational tasks.

Due to the specifics of individual subjects, the content of this work can be detailed only to a certain extent. At the initial stages of this work, it is supposed to jointly analyze how the tasks (assignments) are solved by pupils: whether the goals are correctly formulated, the conditions for their realization are highlighted, if possible, steps for their achievement are outlined, etc. If students in the group cannot adequately propose variants of passing each stage, the teacher offers them a sample solution. The technology of mutual learning is actively used - students are invited to explain their actions to the members of the microgroup if their solution was correct. Over time, the use of self-learning increases. One of the functions of the teacher in supporting these groups is to identify difficulties in the formation of self-regulation skills of learning activity in certain students, which is becoming chronic. Such high school students are offered to use the services of the school psychological service.

2. Creating conditions for situations of responsible choice with regard to personal and professional development and assisting high school students in making it. Increasing the degree of responsibility in the situation of choice is directly related to the development of regulatory functions of self-awareness. This direction is realized through explanatory work with both high school students and their parents in order to give additional symbolic significance to the act of choosing a specialization of education. It can also include the use of economic incentives to increase the responsibility of high school students for their decisions.

Explanatory work is carried out by class teachers and school psychologists and is aimed at making high school students realize the importance of forming self-regulation skills for further professional development. At school, the procedure of choosing a specialization is organized as a ceremonial event and is accompanied by additional symbolic actions (a rather long period of preparation, awarding special badges, etc.). Economic stimulation consists in the fact that students are given an opportunity to save family money in case of successful mastering of self-regulation skills - the school provides free attendance of extracurricular education programs.

3. Personal-professional development plans are used as an independent form to actualize distant goals related to professional and personal development and to develop the ability of self-regulation (planning goals, modeling conditions, programming, correcting activity and its results) in relation to learning activities. This type of pedagogical support is implemented mainly in the counseling work of the school psychologist, aimed at students' awareness of their learning activities in the specialized class as an important stage of professional and personal development.

The purpose of this study was to test the effectiveness of the developed system of pedagogical support for the development of self-regulation of learning activities of high school students in the conditions of specialized education in a public school.

Sample

The study involved 208 students of specialized classes in Moscow schools.

The sample consisted of two groups of students: State Budgetary Educational Institution of Moscow "School No. 2087 "Otkrytie" (the control group) and State Budgetary Educational

Institution of Moscow "School 1367" (the experimental group). The distribution of students by specialized classes is presented in Table 1.

Table 1

Composition of the Experimental and Control Groups of the Sample

Specialization	School № 2087 (control)			School № 1367 (experimental)			Total
		Male	Female		Male	Female	
Mathematical (engineering)	27	15	12	27	13	14	
Humanitarian	27	10	17	27	11	16	
Cadet	26	16	10	24	15	9	
Medical (chemical-biological)	27	13	14	23	9	14	
Total	107	54	53	101	48	53	208

When forming the sample, the similarity of curricula of a number of specializations (e.g., Mathematics and Engineering, Chemistry and Biology and Medicine) was taken into account. The composition of specializations is typical for Moscow schools; at the same time, it is diverse enough to extrapolate the findings to other regions. The sample is practically evenly distributed by gender.

Research Methods

Forming the diagnostic complex, we proceeded from the necessity to measure all levels of self-regulation, including the value-semantic one.

To measure the operational and regulatory-personal levels of the self-regulation of learning activity, we used V.I. Morosanova's questionnaire "Style of self-regulation of learning activity, SSUD-M 2013" [16]. [16].

Accordingly, to measure the degree of formation of the operational level we used its scales "Planning" (Pl), "Modeling" (M), "Programming" (Pr), "Evaluation of results" (Er), and regulatory-personal - "Flexibility" (F), "Independence" (I), "Reliability" (R), "Responsibility" (Res).

To diagnose the value-semantic level of self-regulation and correlate it with students' personal and professional development, we used two methods: the questionnaire "Levels of personal subjectivity development, LPSD" by M.A. Shchukina (2004 [29]) and the method of A.A. Azbel, A.G. Gretzov for studying the statuses of professional identity (2004 [5]). The LPSD methodology is based on the idea of personal subjectivity as a psychological quality based on self-management. The definition of subjectivity in this method coincides with the understanding of the formation of regulatory functions of self-awareness, which allows us to use it to diagnose the value-semantic level of the self-regulation of learning activity. The methodology of studying the statuses of professional identity allows us to determine the level of formation of four statuses. For the purposes of our study, we chose one of them, measured by the scale "Formed professional identity". High values on this scale characterize those young men and women who have independently formed a system of knowledge on themselves and their professional values, goals and life beliefs and have determined what they want to achieve.

Results of the Study

The experimental work began in 2019-2020 (the preparation for it - at the end of 2018-2019) and continued in the 2020-2021 academic years. There was some impact on the course of the experimental work due to the pandemic, which resulted in distance learning during March 2019-June 2020 and October 2020-January 2021. However, for most of the school year, high school students studied in a conventional educational setting, and even during the period of distance education in schools, many forms of microgroup work, and especially individual and paired classes were available in the usual mode.

At the beginning of the experimental work, the distributions in the control and experimental groups were compared in order to justify the possibility of using them in the experiment. The mean values of the variables are presented in Table 2. The comparison was carried out for each indicator independently using the Mann-Whitney U criterion. The results of statistics calculation in all cases did not exceed the significance level $\alpha=0.05$, and this allows us to state that there are no significant differences in the observed values of variables, which in turn demonstrates the possibility of using this sample for the experiment.

The numerical values of changes in the main indicators in the control and experimental groups as a result of the application of the developed system of development of self-regulation of learning activity are shown in Table 2.

Table 2

Values of the Main Indicators of Self-regulation of Learning Activity at the Beginning and at the End of the Experiment in the Control and Experimental groups (N=208)

Group	Op		RP		GI		PrId		SUB	
	Start	Finish	Start	Finish	Start	Finish	Start	Finish	Start	Finish
Control	12,01	13,48	10,58	11,32	22,59	24,8	08,54	11,10	153,54	152,92
Experimental	11,50	17,62	9,74	16,97	21,24	34,59	08,68	18,03	146,11	196,00

Symbols. Op - formation of the operational level of regulation (SSUD-M); RP - formation of the regulatory-personal level of regulation (SSUD-M); GI - general level of self-regulation (SSUD-M); PrId - level of professional identity formation (the methodology of A.A. Azbel, A.G. Gretzov); SUB - general level of subjectivity (LPSD). The data is given in absolute values.

Since in Table 2 the data is given in absolute values, for the convenience of visualization we normalized it on a 100-point scale and formed a histogram on its basis (Fig. 1). Quite pronounced differences are visually observed. To test their statistical significance, we used the Mann-Whitney U test for independent samples. The results showed the significance level of differences $\alpha=0.05$.

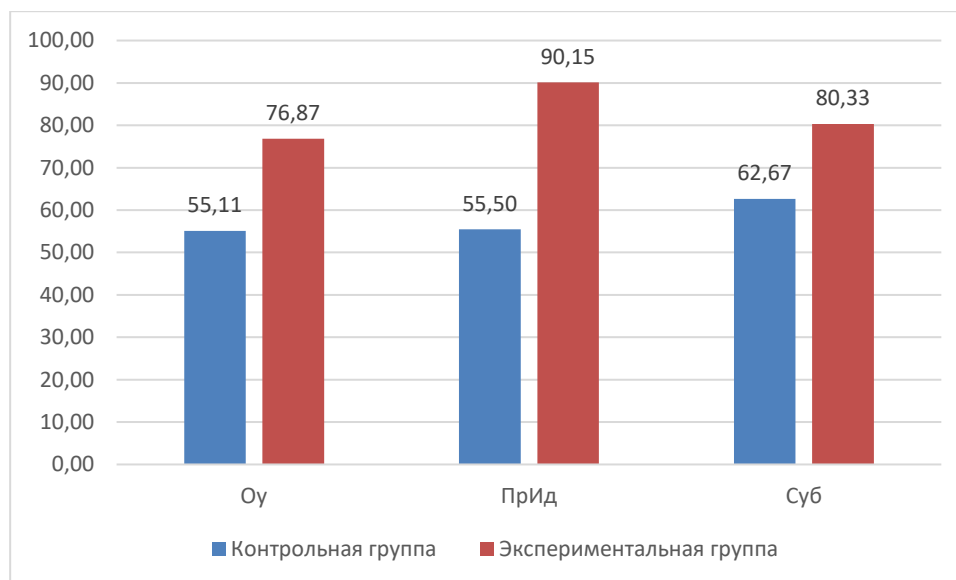


Figure 1. Histogram of the ratio of the values of the main variables (normalized data): Gl - general level of self-regulation; PrId - level of professional identity formation; SUB - general level of subjectivity; data normalized to 100-point scale

Although we did not set the task of investigating gender differences, we compared the distributions of the main variables for students of different genders. When analyzing the differences by gender, it was revealed that the only differentiating parameter is the regulatory-personal level of self-regulation, the indicators of which are higher in boys.

The analysis of the correlation relations between the main variables, on the basis of which we characterized the self-regulation of learning activity, showed that all of them are connected with each other by significant correlations. Moreover, the correlation of the indicator "subjectivity" with the other variables is quantitatively more pronounced: thus, with professional identity it is 0.36, with the operational level of regulation - 0.53, with the regulatory-personal - 0.41. For a sample size of several hundred people, these are very high values. Such correlation values testify to the great role of self-awareness and subjective-personal components in the regulation of learning activity of students of specialized classes.

Conclusion

The proposed system of pedagogical support for the development of the self-regulation of learning activity in specialized classes contributes to the increase of its operational and regulatory-personal levels, as well as the development of value-semantic characteristics of students' self-awareness. The actualization of the value-semantic level of self-regulation of learning activity in high school students is achieved largely due to the organization of situations of personal-professional choice and the creation of conditions that increase the responsibility for it.

The results of the experimental study showed the effectiveness of the developed system in specialized classes of the secondary school. On average, the relative increase in all levels of self-regulation of learning activity amounted to about 20-30% (compared to the control group).

Further research in the development of self-regulation of learning activity can be aimed at studying the organization and functioning of different variants of its pedagogical support depending on different types of educational environments. In general, the study of the problems of the self-regulation of learning activity will remain relevant in the distant future, because it corresponds to the main directions of the development of the educational system.

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Adaptation of the Questionnaire Parental Mediation Of Children's Media Activity by G. Nimrod, D. Lemish, N. Elias on a Russian Sample of Parents of Older Preschoolers

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The issue of digitization of modern childhood is attracting increasing attention from researchers. Literature analysis has shown that many authors consider the strategies through which adults regulate and mediate the influence of digital devices and various media products on children as the most adequate parameter for studying parental mediation of children's media activity. However, there are not many tools available for studying this phenomenon and they are more common in English-language literature. The task was to adapt the questionnaire "Parental Mediation of Children's Media Activity" by G. Nimrod, D. Lemish, and N. Elias, for the Russian-speaking sample. The study involved 322 parents of children in the upper preschool age group attending kindergartens in large and small cities (average age of parents was 28,5 years, including 237 women and 85 men). The study showed that the adapted Russian-language questionnaire differs from the original in its factor structure and consists of 12 statements and three scales: restrictive mediation strategy, instructive mediation strategy, and co-use. The Russian-language questionnaire demonstrates test-retest reliability, internal consistency, construct, and convergent validity, and can be used to study parental mediation and assess children's media activity for the Russian-speaking sample.

Keywords: digital devices; parental mediation of children's media activity; questionnaire adaptation; reliability; validity.

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Проблема цифровизации современного детства все больше привлекает внимание исследователей. Анализ литературы показал, что наиболее адекватным параметром для изучения родительского посредничества детской медиаактивности многие авторы считают стратегии, с помощью которых взрослый регулирует и опосредует влияние цифровых устройств и различных медиапродуктов на ребенка. При этом инструментов для изучения этого явления не много, и они встречаются чаще всего в англоязычной литературе. Была поставлена задача адаптировать для русскоязычной выборки опросник «Родительское посредничество детской медиаактивности» Г. Нимрод, Д. Лемиш, Н. Элиас. В исследовании приняли участие 322 родителя детей старшего дошкольного возраста, посещающие детские сады крупных и малых городов. Исследование показало, что адаптированный русскоязычный опросник отличается от оригинального по своей факторной структуре и состоит из 12 утверждений и трех шкал – ограничительной стратегии посредничества, инструктивной стратегии посредничества и совместного использования. Русскоязычный опросник обладает тест-ретестовой надежностью, внутренней согласованностью, конструктивной и конвергентной валидностью и может быть использован для изучения родительского посредничества и оценки детской медиаактивности для русскоязычной выборки.

Ключевые слова: цифровые устройства; дошкольная медиаактивность; родительское посредничество детской медиаактивности; адаптация опросника; надежность; валидность.

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Introduction

The processes of computerization and informatization of practically all spheres of society lead to broad technological and social consequences, relationships between people are transformed, in particular, between parents and children, adult and child, child and child.

Modern researchers are actively creating and developing the concept of digital socialization and a new social and cultural psychological phenomenon – the digital childhood as a special historical type of childhood [9; 10; 14]. Foreign authors increasingly talk about the "mediatization" of childhood - the penetration of media into all aspects and levels of children's life [20; 25].

The role of the adult in the use of digital devices by the child, in his or her media activity becomes the subject of an increasing number of domestic and foreign studies [2; 3; 4; 7; 7; 13; 16; 17; 31].

A particularly relevant area of research on this issue is the study of parental mediation of children's media activity. In the framework of our study, parental mediation of children's media activity (or mediation) is understood as the organization of parents' interaction of a child with media content through any digital device [26; 30]. It is an educational impact that targets the sphere of media products and digital devices and mediates the influence of media content on the child [26; 29]. It refers to the parent's educational influence in the context of the use of digital devices, such as limiting the child's use of digital devices, discussing various media content together, etc. Mediation is applied to a wide range of digital devices: TV, computers, smartphones, tablets, etc. This line of research allows to directly study the issues of how the adult regulates and mediates the influence of digital devices and various media products on the child and his/her development [7; 12; 13; 30].

Four main strategies are most commonly identified in research: restrictive, instructive (active), co-use, and supervisory strategies [12; 19; 27; 28].

The restrictive strategy is related to the application of parental restrictions on the time and content of digital device use. This leads to the introduction of certain rules in the child's use of digital devices.

Instructive (active) strategy involves discussing the content of media products with children, such as instructive and evaluative conversations. In this way, parents help the child to understand the media content and relate it to real-life experiences.

The co-use strategy involves "silently" watching various media products or video games together with the child. There is no additional interaction or discussion of what is happening on the screen.

The supervision strategy involves parental observation of the child's use of digital devices without

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engaging in their activities [15; 19; 27]. In addition, it is emphasized that when parents observe their child's media activity, they still resort to other strategies such as restrictive, active, or co-use [16; 18].

According to researchers, the active and restrictive strategies have a positive effect on child development if they are combined with a joint child-parent discussion of the rules of media content use, the child's understanding of the reasons for the adopted restrictions, and the parents' sincere involvement in dialog and interaction with the child [18; 29]. In addition, the restrictive strategy is more effective in protecting the child from "undesirable" content. The "supervision" and "co-use" strategies have been shown by research to have no positive impact on the child [18]. Parental mediation of a child's digital activity mediates the direct, immediate impact of various media content on the child. It allows not only to reduce the negative effects of media and protect the child from undesirable content, but also helps to reveal the developmental and educational potential of various media products.

At the moment, Russian psychology is actively developing various tools to study the use of digital devices by preschoolers and the role of adults in this process [1; 3; 5; 7; 11; 13]. These tools certainly address various aspects of parental mediation to a greater or lesser extent. However, methods aimed at studying various parameters of parents' use of different strategies for mediating preschool media activity are currently poorly represented in domestic psychology.

The purpose of our study was to find and adapt an instrument to study parental strategies of mediation of children's media activity for a Russian sample. We adapted the Parental Mediation Questionnaire by G. Nimrod, D. Lemish, and N. Elias [19]. This questionnaire was chosen for a number of reasons.

First, it allows us to study all four of the most common parental mediation strategies (restrictive, instructive, shared use, and supervision).

Second, G. Nimrod and colleagues take into account the specifics of the modern use of digital devices with a division into non-interactive, or passive (watching various video products without an active interaction with the device), and interactive, or active (the use of applications and video games, involving active interaction with the device), use. Research shows that the interactive and non-interactive use of digital devices can have different effects on child development [19; 21; 24].

Third, the questionnaire in its original version has high psychometric performance.

The hypothesis of our study was that the factor structure of the foreign questionnaire of parental strategies for mediating children's media activity will be similar to the factor structure of this questionnaire applied to the Russian sample.

Methods

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Adaptable questionnaire. The original parental mediation of children's mediational activity questionnaire consists of 16 statements, the responses to which are constructed on a Likert scale, where parents are asked to rate each statement on a scale of 1 to 5, where 1 is never, 5 is always.

In the original questionnaire, the authors provide a model in which there were two main scales of "active" (interactive) and "passive" (non-interactive) mediation, which in turn were subdivided into subscales: restrictive mediation, instructive mediation, and supervisory and shared use strategies. These scales had 8 statements each.

Sample and Procedure. The study involved 322 parents of older preschool-aged children attending kindergartens in Moscow, Veliky Novgorod, Podolsk, Khimki, and three rural settlements near Moscow. The minimum age of respondents was 23 years, the maximum was 51 years ($M=28.5$; $SD=7.4$). To verify convergent validity, we used additional methods. In order to investigate the total screen time of preschoolers per week, we used the corresponding scale of the questionnaire "Gadget Use Regulations" by M.V. Bortsova and S.D. Nekrasov [1]. To identify the position of parents in relation to children's mental development, we used the scale "Activity-Passivity" of the questionnaire by E.L. Porotskaya and V.F. Spiridonov [8].

The study was conducted in the period of 2020-2021. The participants filled out questionnaires both in person and remotely through the "Google Forms" service.

We used the following methods of statistical data processing. The IBM SPSS v 23 program was used to calculate Spearman's correlation coefficient, Cronbach's alpha and exploratory analysis – the Principal Component Analysis (PCA) method, with use of the "Varimax" rotation method. The Mplus 8.8 program was used for Confirmatory Factor Analysis (CFA) using the Diagonally Weighted Least Squares (DWLS) method, relying on the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), the Root Mean Square Error of Approximation (RMSEA), the Weighted Root Mean Square Residual (WRMSR) statistics.

Results

All methodology items and instructions were pre-translated into Russian and checked by the reverse-translation procedure, and submitted for discussion and correction to competent experts.

The authors of the original questionnaire obtained, through confirmatory factor analysis, a structure with two main scales – active and passive mediation, which in turn are subdivided into restrictive, instructive, supervision strategies and the co-use of gadgets.

To test the structure of the original version of the questionnaire, we conducted confirmatory factor analysis using the diagonally weighted least squares (DWLS) method, which is the most appropriate for ordinal data, which includes the Likert scale on which the present questionnaire is based [23].

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When assessing the model fit, we were guided by the following criteria: $TLI \geq 0.95$; $RMSEA \leq 0.08$; $CFI \geq 0.95$ [22]. At the same time, modern authors note that the model fit should be evaluated in a set of parameters [23]. Repeating the model of the questionnaire authors showed that the constructed model does not fit the obtained data ($RMSEA=0.130$; $CFI=0.789$; $TLI=0.734$; $WRMR=1.300$).

Next, we conducted exploratory factor analysis of the obtained data by principal component analysis (PCA) using the Varimax rotation method. The Kaiser-Meyer-Olkin test showed the suitability of the data for factor analysis ($KMO=0.84$). Bartlett's sphericity criterion $\chi^2=2514.45$; $df=120$; $p<0.001$. We requested a factor solution with four factors, in accordance with the number of subscales in the original version of the questionnaire. This factor solution explained 65.6% of the total variance.

Table 1

Exploratory Factor Analysis of the Questionnaire Statements Using the Varimax Rotation Method

№	Strategy	Statement from the questionnaire	F.1	F.2	F.3	F.4
1	Restrictive	Specify in advance when and for how long your child can watch movies, cartoons, YouTube, etc.	0,077	0,765	-0,039	0,193
2	Instructive	Talk to your child about what is happening on the screen while watching.	0,747	-0,056	-0,094	0,250
3	Supervision	Watch what is happening on the screen when your child is watching movies, cartoons, YouTube, etc., while staying in the same room with your child.	0,745	-0,017	-0,264	0,039
4	Co-use	Watch movies, cartoons, YouTube, etc. with your child that he/she has chosen and wants you to join him/her.	0,664	0,019	-0,072	0,414
5	Restrictive	Specify in advance which movies, cartoons, YouTube videos, etc. your child can watch.	0,298	0,725	-0,102	0,144
6	Instructive	Discuss different movies, cartoons, YouTube videos, etc. with your child (in general, not at the time of watching).	0,575	0,129	0,092	0,556
7	Supervision	Ask your child what he/she is watching at the moment.	0,526	0,284	0,105	0,070
8	Co-use	Together with your child watch movies, cartoons, YouTube, etc. that you have chosen yourself and want your child to join you.	0,291	0,135	0,373	0,593
9	Restrictive	Specify in advance when and for how long your child can play games, use different apps, websites, etc.	0,201	0,825	0,098	-0,080

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10	Instructive	Discuss with your child what is happening on the screen while playing games or using apps, websites, etc.	0,797	0,152	0,192	-0,109
11	Supervision	Watch what is happening on the screen when your child is playing or using apps, websites, etc. while staying in the same room with your child	0,827	0,159	0,082	-0,239
12	Co-use	Playing games, apps, websites, etc. with your child that your child has chosen and wants you to join them	0,541	-0,028	0,678	0,051
13	Restrictive	Specify in advance what games, apps, websites, etc. your child may use.	0,393	0,647	0,111	-0,277
14	Instructive	Discuss with your child different games, apps, websites, etc. (in general, not at the time of viewing)	0,641	0,122	0,476	0,063
15	Supervision	Asking your child what he/she is doing in the game, app, website, etc. at the moment.	0,697	0,135	0,328	-0,247
16	Co-use	Playing games, using apps, websites, etc. with the child that you have chosen and want your child to join you.	0,402	0,006	0,751	0,157

As we can see from Table 1, the data did not show a clear structure, only the factor of restrictive monitoring (Factor 2) stood out clearly in accordance with the theoretical views.

Having analyzed the data, we decided to remove the statements aimed at identifying the supervision strategy from the questionnaire. Our decision was due to the fact that, firstly, as we have already noted, it is rather difficult to identify this strategy as a separate construct, and not all researchers identify supervision as a self-sufficient strategy; secondly, these statements introduced confusion into the factor structure.

After reduction, 12 statements remained in the questionnaire, which we re-examined by exploratory analysis using the PCA principal component method with Varimax rotation (Table 2).

The Kaiser-Meyer-Olkin test showed the suitability of the data for exploratory factor analysis (KMO=0.79) with fewer items (n=12). Bartlett's criterion of sphericity $\chi^2=1647.80$; $df=66$; $p<0.001$. Based on the scree-plot and factor loadings, three factors were identified that collectively explained 63.6% of the total variance.

Table 2

Exploratory Factor Analysis of the Questionnaire Statements using the Varimax Rotation Method after Removing the Supervision Strategy Statements

№	Strategy	Statement from the questionnaire	F.1	F.2	F.3
1	Restrictive	Specify in advance when and for how long your child can watch movies, cartoons, YouTube, etc. (r1)	-0,055	0,750	0,106
2	Instructive	Talk to your child about what is happening on the screen while watching. (i1)	0,189	0,055	0,793
3	Co-use	Watch movies, cartoons, YouTube, etc. with	0,194	0,102	0,750

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		your child that he/she has chosen and wants you to join him/her. (t1)			
4	Restrictive	Specify in advance which movies, cartoons, YouTube videos, etc. your child can watch. (r2)	0,016	0,748	0,246
5	Instructive	Discuss different movies, cartoons, YouTube videos, etc. with your child (in general, not at the time of watching). (i2)	0,223	0,150	0,766
6	Co-use	Together with your child watch movies, cartoons, YouTube, etc. that you have chosen yourself and want your child to join you. (t2)	0,450	0,107	0,326
7	Restrictive	Specify in advance when and for how long your child can play games, use different apps, websites, etc. (r3)	0,150	0,854	0,009
8	Instructive	Discuss with your child what is happening on the screen while playing games or using apps, websites, etc. (i3)	0,474	0,278	0,543
9	Co-use	Playing games, apps, websites, etc. with your child that your child has chosen and wants you to join them (t3)	0,858	0,037	0,240
10	Restrictive	Specify in advance what games, apps, websites, etc. your child may use (r4)	0,263	0,731	0,089
11	Instructive	Discuss with your child different games, apps, websites, etc. (in general, not at the time of viewing) (i4)	0,633	0,195	0,456
12	Co-use	Playing games, using apps, websites, etc. with the child that you have chosen and want your child to join you (t4)	0,878	0,037	0,112

Removing the supervision strategy statements from the questionnaire resulted in a clearer factor structure. As we can see, restrictive monitoring clearly stood out as a separate factor, while the statements from the co-use and instructive monitoring strategies showed a slightly mixed structure, but nevertheless could be read well. This does not contradict theoretical views, as very often instructive monitoring can be applied during digital device co-use and vice versa.

To confirm the three-factor structure, we performed a repeated confirmatory factor analysis by diagonally weighted least squares (DWLS). The resulting model showed a sufficient fit to the data obtained RMSEA=0.082; CFI=0.975; TLI=0.963; WRMR=0.871. The data allows us to distinguish three scales in the questionnaire: restrictive monitoring, instructive monitoring, and shared use of digital devices. The division into interactive and non-interactive use of digital devices was not found in the Russian-speaking sample.

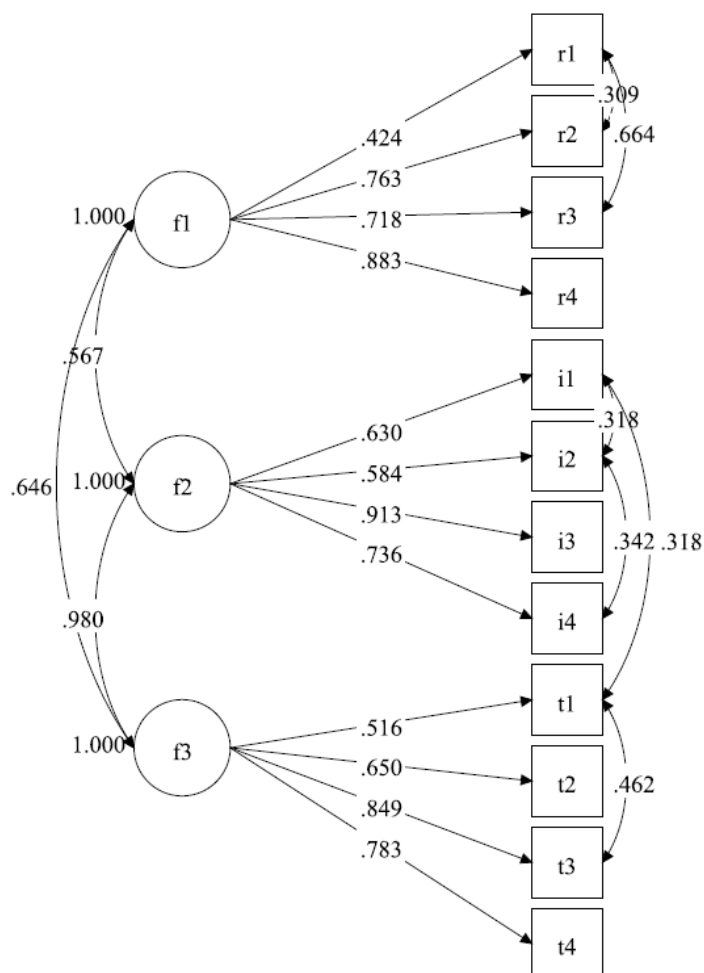


Fig. Three-factor structure of the questionnaire tested by Confirmatory Factor Analysis (CFA): f1 - "Restrictive Strategy" factor, f2 - "Instructive Strategy" factor, f3 - "Co-use Strategy" factor, r1-r4, i1-i4, t1-t4 - items related to the respective factors

As can be seen from the figure, we labeled additional correlations between statements from the questionnaire that have a similar lexical structure or may imply co-using different strategies (e.g., watching a cartoon together and discussing it). All item loadings on the corresponding factors of the model were found to be significant. Thus, a slightly different mediation model was obtained in the Russian-speaking sample, based on the use of different strategies without a division into "active" and "passive" use of digital devices. Differences in the models may also be due not only to cultural differences, but also to the specific age group of the children whose parents participated in the study. We investigated adult mediation of media activity of older preschoolers, but the original questionnaire structure was developed for a wider age range of children - from 2 to 8 years old.

The questionnaire demonstrated a fairly high degree of internal consistency of the scales. Cronbach's alpha values: for the restrictive monitoring scale $\alpha=0.79$; for the instructive monitoring

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scale $\alpha=0.81$; for the co-use scale $\alpha=0.74$, considering the fact that each of them included only four items.

The questionnaire showed good retest reliability as measured by Spearman's correlation coefficient when two measurements were conducted 3.5-4 weeks apart on the same participants. Restrictive monitoring scale $r=0.86$; instructive monitoring scale $r=0.81$; co-use scale $r=0.79$.

Convergent Validity

The external convergent validity of the questionnaire was tested using the questionnaires "Gadget Use Regulations" by M.V. Bortsova and S.D. Nekrasov and "Parents' Positions Regarding Child Development" by E.L. Porotskaya and V.F. Spiridonov (Table 3). The correlations between the scales of our questionnaire and the scales of the other two questionnaires were calculated using the Spearman correlation coefficient.

Table 3

Correlation Matrix of Convergent Validity

№	Mediation strategy	"Gadget Use Regulations" by M.V. Bortsova and S.D. Nekrasov	"Parents' Position Regarding Child Development" by E.L. Porotskaya and V.F. Spiridonov
		Total time per week that the child spends in front of a screen	Activity-Passivity scale
1	Restrictive strategy of mediation	-0,31**	0,19**
2	Instructive strategy of mediation	0,19	0,34**
3	Co-use	-0,21	0,32**

Notes: * - $p<0.05$; ** - $p<0.01$.

First of all, we obtained a negative, statistically significant relationship between the total time per week that a child spends in front of the screen and the restrictive mediation strategy ($r=-0.31$ at $p<0.01$). Within the framework of our study, we cannot draw conclusions about causal relationships, however, taking into account the data from foreign studies, we can assume that it is the restrictive mediation strategy that reduces the time a child spends in front of the screen of a digital device.

We obtained positive correlational statistically significant relationships between all types of parental mediation and the scale "Activity-Passivity" of the questionnaire "Parents' Position Regarding Child Development" by E.L. Porotskaya and V.F. Spiridonov. This scale reveals parents' acceptance of the necessity of their active participation in the child's development or their exclusion from it. As we can see, restrictive strategy ($r=0.19$ at $p<0.01$), instructive strategy ($r=0.34$ at $p<0.01$) and co-use ($r=0.32$ at $p<0.01$) are positively related to this scale of the questionnaire. That is, the more parents accept the need for their active participation in their child's development, the more involved they are in this process, the more actively they use various strategies to mediate children's media activity and vice versa.

The correlations obtained between parental mediation strategies and child screen time, as well as parental activity in the context of child development, confirm the convergent validity of the adapted

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questionnaire.

Using the data collected from the standardization sample, a percentile normalization procedure was performed on the scales (Table 4). For standardization, we selected a seven-point standard scale for each parental mediation strategy (with mean $M=4$, standard deviation $S=1$).

Table 4

Correspondence of the Raw Scores of the Questionnaire to the Standardized Ones

Restrictive strategy	
Raw score	Standard score
4-5	1
6-9	2
10-14	3
15-18	4
19-20	5
Instructive strategy	
4-5	1
6-8	2
9-12	3
13-15	4
16-18	5
19-20	6
Co-use	
4	1
5-7	2
8-10	3
11-14	4
15-17	5
18-20	6

As we can see from Table 4, for the instructive mediation and co-use strategy, standard scores from 3 to 5 indicate mean values, 2 is low, 1 is very low, and 6 is high. For the restrictive strategy, standard scores from 3 to 5 indicate medium values, 2 are low, 1 are very low.

The obtained standardization data does not fully conform to the normal distribution and is shifted "to the right", which indicates a high involvement of parents in mediating the use of digital devices by older preschool children [6].

Findings

1. The hypothesis of our study that the factor structure of the foreign questionnaire of parental strategies for mediating children's media activity will be similar to the factor structure of this questionnaire applied to the Russian sample was partially confirmed. The factor structure in the Russian version included three of the four factors found in the foreign version of the questionnaire: restrictive strategy, instructive strategy, and co-use.

2. The Russian adapted instrument has test-retest reliability, internal consistency and construct validity. The adaptation also confirmed the convergent validity of the questionnaire. The norms for the three scales of this questionnaire were calculated.

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3. The adapted version of the "Parental Monitoring of Children's Media Activity" questionnaire by G. Nimrod, D. Lemish, N. Elias can be used on a Russian-speaking sample of parents of older preschool children (5-7 years old).

Conclusion

The adapted questionnaire allows for the identification of parents of older preschoolers' use of three main parental strategies for mediating children's media activity: restrictive strategy, instructive strategy, and co-use strategy.

The limitations of this study include the insufficient sample size of fathers, and the narrow age group of children - older preschoolers. These limitations simultaneously become prospects for further research that will expand and clarify the specifics of parents' use of various strategies to mediate children's media activity. In particular, there is a need to explore in more detail the links with different parameters of digital device use by older preschoolers, the impact of mediation strategies on their mental development, and the relationship of mediation strategies to the broader context of child-parent relationships, which will deepen the understanding of the adult's role in children's use of digital devices. Separately, there is a need to explore parental mediation strategies in other age groups - early childhood, preschool, primary school, and adolescence.

Each of the identified strategies, restrictive, instructive and co-use strategies, has its own positive and negative sides from the point of view of preschooler's development. We believe that this questionnaire, which allows us to identify these strategies, will be useful for practitioners, psychologists and teachers to identify parents' attitudes toward children's media activity and to further correct them. Parents will be able to choose the most optimal position to help their child develop with the help of digital devices and to avoid the negative consequences of digitalization.

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Adaptation of the Moral Identity Questionnaire on the Russian Sample

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The relevance of the study is determined by the activation of malevolent creativity and the consequences of its implementation in behavior in the form of information wars, fraud and terrorism against the background of a special military operation in Ukraine. In a threatening socio-political context, the role of morality as a regulator of behavior is important. Foreign studies show that the relationship between morality and behavior is not unambiguous, and the research results contradict each other. In many ways, such discrepancies are associated with the use of tools that are not suitable for identifying the connection of morality with behavior. The article presents the results of adaptation of the Russian version of the questionnaire "Moral Identity" (K. Aquino, A. Reed). The advantage of this questionnaire is that the authors used it to show the connection between the importance for a person of moral identity and moral behavior in everyday life. The two-factor structure of the translated version corresponds to the original version and includes the following sections: "Internalization" and "Symbolization". The stability of the factor structure of the questionnaire was confirmed in a sample of young people (N=303, cf. age 19, SD = 2.03; 144 of them were girls). With the help of the questionnaire "Justice-Care" (V.S.Molchanov) and the scale of self-respect (M.Rosenberg) conducted an assessment of the constructive and disqualified validity (respectively). The results obtained are consistent with the results of the authors of the original version and serve as confirmation of the difference between the construct of moral identity from those constructs with which discriminant and constructive validity was checked. The analysis of retest reliability (N=80) revealed modest but significant correlations, which is consistent with the position of the authors of the original version about the instability and situativeness of moral identity. Additional studies of constructive validity using aggression questionnaires (BRAQ-24), Conscientiousness and Cooperation scales ("NEO-FFI"), tolerance scales as traits (G.U.Soldatova et al.) on the sample (N=158) revealed positive correlations of scales with the traits of the Big Five and negative associations with aggression. Hypotheses are formulated for further research, according to which the stability of moral identity in different contexts can be determined by the traits of the Big Five and tolerance. According

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to the results of the adaptation, the translated version of the questionnaire can be used for research purposes and in assessing, monitoring and correcting the moral and psychological state of older adolescents and young people.

Keywords: morality, moral identity, traits of the Big Five, aggression, tolerance

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Адаптация опросника моральной идентичности на российской выборке

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Актуальность исследования определяется активизацией асоциальной креативности и последствиями ее реализации в поведении в виде информационных войн, мошенничества и терроризма на фоне проведения специальной военной операции в Украине. В условиях угрожающего социально-политического контекста важна роль морали как регулятора поведения. Зарубежные исследования показывают, что связь морали и поведения не однозначна, а результаты исследований противоречат друг другу. Во многом такие расхождения связаны с использованием инструментов, не пригодных для выявления связи морали с поведением. В статье представлены результаты адаптации русскоязычной версии опросника «Моральная идентичность» (К. Aquino, А. Reed). Достоинством данного опросника является то, что авторы с помощью него показали связь важности для человека моральной идентичности и мо-

рального поведения в обыденной жизни. Двухфакторная структура переводной версии соответствует оригинальной версии и включает шкалы: «Интернализация» и «Символизация». Устойчивость факторной структуры опросника подтверждена на выборке молодежи ($N=303$, ср.возраст 19, $SD = 2.03$; из них 144 девушек). С помощью опросника «Справедливость-Забота» (В.С.Молчанов) и шкала самоуважения (М.Розенберг) проведена оценка конструктивной и дискриминантной валидности (соответственно). Полученные результаты согласуются с результатами авторов оригинальной версии и служат подтверждением отличия конструкта моральной идентичности от тех конструктов, с помощью которых проверялась дискриминантная и конструктивная валидность. Анализ ретестовой надежности ($N=80$) выявил скромные, но значимые корреляции, что согласуется с положением авторов оригинальной версии о нестабильности и ситуативности моральной идентичности. Дополнительные исследования конвергентной валидности с помощью опросников агрессии (BRAQ-24), шкал Добросовестность и Сотрудничество («NEO-FFI»), шкалы толерантности как черты (Г.У.Солдатова и др.) на выборке ($N=158$) выявили положительные корреляции шкал с чертами Большой пятерки и отрицательные связи с агрессией. Сформулированы гипотезы для дальнейшего исследования, согласно которым стабильность моральной идентичности в разных контекстах может определяться чертами Большой пятерки и толерантности. По результатам адаптации переводную версию опросника можно использовать в исследовательских целях и при оценке, мониторинге и коррекции морально-психологического состояния старших подростков и молодежи.

Ключевые слова: мораль, моральная идентичность, черты Большой пятерки, агрессия, толерантность

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Introduction

The regulatory role of morality in behavior becomes critical under conditions of uncertainty and a threatening socio-political context. Observations of real life in the conditions of the special operation in Ukraine show that it is in such conditions that asocial creativity, i.e. information wars, fraud and terrorist acts, which are always based on the intention to cause moral or physical harm to the enemy in new and original ways, has become more active. It becomes evident that morality neither in the generation of ideas nor in behavior that causes harm, at the level of world powers, does not exert its regulatory role, especially when it concerns the enemy. Meanwhile, how this

kind of socio-political context affects the morality and creativity of ordinary people remains to be seen, as does whether it will affect interpersonal interaction with representatives of the parties involved in the conflict. Within the working scheme of the dynamic model of creativity (see [5]), an important place is given to moral identity. According to this scheme, context (socio-political conditions) influences both creativity and moral identity, which, in turn, also regulates creative behavior [5].

The question of the relationship between creativity and morality remains open, as the data obtained in the studies is extremely contradictory: some studies found a positive relationship, while others found a negative one [22]. The ambiguity of the results can be explained by the variety of tools used to diagnose morality: social dilemmas; moral judgments; Dark Triad traits, questionnaires of ethics, values, prosocial motivation, etc. [22]. Thus, in studies that have found positive correlations between creativity and morality, the latter was measured using the difference in the distribution of moral and immoral personality traits with respect to the subject and others [17] or with the effectiveness of ethical decision-making [9]. Negative correlations with morality have been exemplified by research on the association of creative personality with dishonest, i.e., immoral behavior [23]. A negative relationship between creativity and morality has also been shown, explained by the activation of unethical traits and the presence of unethical judgments [18]. Regarding the relationship with antisocial creativity, it has been shown that negative moral traits are manifested in high malicious creativity in divergent thinking tasks [15; 16]. In a pilot study, it was shown that higher levels of moral identity were combined with the generation of negative solutions in tasks with positive valency and the regulatory role of moral identity in situations with negative connotations (revenge for pouring compote) was revealed [7]. Despite the number of diagnostic tools available, there is clearly insufficient research to conclude what role morality plays in the implementation of creative harmful creative decisions in behaviors that harm others. Moreover, the results of the connection between moral consciousness and behavior are also ambiguous, and there are almost no studies on this topic in the last few years [12]. In addition, Russian science is lagging behind in the development of tools for diagnosing morality and moral consciousness, there are no standardized methods, there is no data on the reliability and validity of tests [11], and the available tests are labor- and resource-intensive.

Although in foreign psychology there is the opinion that morality and negative ideation are in no way interrelated [21], in our research we paid attention to the fact that some respondents, of different ages, refused in the tasks on antisocial creativity to come up with original ways of revenge for damage to property [4; 6], explaining that revenge is not acceptable. We assumed that moral identity can regulate such behavior and in a pilot study [7] we obtained confirmation of this, albeit on a small sample of adolescents and psychology students. During the course of studying the influence of socio-political context on antisocial creativity (see [5]), we needed a methodology that diagnoses moral behavior, and we settled on the moral identity questionnaire.

The purpose of this article is to present the results of the adaptation of the moral identity questionnaire developed by C. Aquino and A. Reed on a Russian sample. The questionnaire was chosen for several reasons.

The Characteristic of Moral Identity and the Questionnaire for its Diagnosis

In creating the questionnaire to diagnose moral identity, K. Aquino and A. Reed proceeded from several assumptions: 1. An individual has the ability to identify with others on a variety of variables, and, accordingly, that an individual's self-concept can be organized around moral characteristics. 2. Moral identity is based on character traits, yet it may have a social referent in the form of a real social group. 3. Individuals with a strong moral identity should strive to maintain consistency between their ideas of their moral self and their actions in the world. 4. To measure moral identity, it is important to activate a subset of moral traits related to those moral traits that are important to a particular person's self-concept. 5. Moral identity may be stable over time, but it is not a personal characteristic, and like other types of social identity can be activated by the influence of the situation. Nevertheless, the higher a person's moral identity, the more likely it is to manifest itself in a wide range of situations and the stronger is its connection to moral perceptions and moral behavior. 6. Moral identity is distinct from moral judgments. The motivational factor for its connection to behavior is that a person views certain moral qualities as essential to his or her self-concept [14]. Regarding the latter assumption, in the studies of S. Reynolds and T. Ceranic it was shown that moral identity and moral judgment influenced moral behavior independently of each other. Moreover, in situations of low social consensus about moral behavior, moral judgment and moral identity interacted to elicit moral behavior. This interaction effect confirmed the motivational power of moral and moral identity [20].

The authors of the moral identity questionnaire first conducted research based on implicit concepts of moral personality, which allowed them to identify a set of personality traits that are considered fundamental to highly moral persons [3], resulting in the selection of 9 characteristics. The instructions ask you to first imagine in your mind a person who possesses these characteristics (caring; compassionate; fair; friendly; generous; helpful; hardworking; honest; kind¹) and then offer statements to agree with on a 7-point scale. There are 10 statements in the questionnaire (the 4th and 7th statements are reversed), each scale includes 5 statements. The moral identity questionnaire consists of two scales: Internalization and Symbolization. The first scale diagnoses how important these qualities are to the respondent, whether he/she would like to possess them, and so on. The second scale shows to what extent these qualities are manifested in helping behavior - in volunteering. The original English version of the questionnaire showed high reliability and validity: Cronbach's alpha = 0.73 for the Internalization scale and = 0.82 for the Symbolization scale. Confirmatory analysis confirmed the theoretical model of the questionnaire authors: chi-square

¹ The presented list of characteristics is consistent with the implicit representations of the Russian sample about decency as a moral characteristic of a person, obtained in the study by M.I. Volovikova and A.L. Zhuravlev [1].

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(43, N = 347) = 205.96, $p < 0.001$, RMSR = 0.04, GFI = 0.87, CFI = 0.87, NFI = 0.84 [14].

It is worth mentioning the features of the validation of the original version of the questionnaire: nomological validity was tested with the help of the scale of propensity to approve the use of socially disapproved behavior to achieve goals; the scale of religiosity; the scale of sympathy for helping those in need; the scale of revenge for harm done; Rest's defining issues test. Discriminant validity was tested with the Rosenberg self-esteem scale; locus of control; social anxiety: there were no correlations of the original version of the questionnaire with these variables. Test-retest reliability, for the Internalization and Symbolization scales were 0.49 and 0.71, respectively, in the time interval from 4 to 6 weeks (N=148). All the validation activities conducted on the questionnaire led the authors to conclude that moral identity is different from all the measured constructs, not stable over time due to being influenced by situations or personality traits. The strength of this questionnaire is that the authors used it to show the relationship between the importance of moral identity and moral behavior: the measurement instrument was shown to be internally consistent, stable in its basic factor structure, constructively valid, and predictive of psychological and behavioral outcomes [14].

Methodology and Methods

In our study on the adaptation of the moral identity questionnaire, 303 respondents (mean age 19, SD = 2.03; 144 of them were girls) took part in the questionnaire and were given forms with instructions and a form for answering the questions of the method. Some respondents (134) completed the questionnaire online. After 6 weeks, 80 people completed the retest of the moral identity questionnaire and the questionnaires "Justice-Care" [8] and self-esteem (M. Rosenberg) to check discriminant and construct validity, according to the validation of the original version of the questionnaire [14]. Based on the fact that "the maximum correspondence between moral judgment and behavior is observed in people at the end of the second and third levels of moral development" [2, P.62-63], we assume to reveal correlations of moral identity with the conventional and postconventional level of moral development according to L.Kohlberg and with such stages of moral development according to K.Gilligan and N.Eisenberg as self-sacrifice and self-respect (according to the questionnaire of V.S.Molchanov [8]). We also assumed, following the authors of the original version of the questionnaire, that the self-esteem scale (Rosenberg) should not correlate with moral identity, as these are different constructs [14]

The questionnaire was first translated into Russian and then into English via Yandex-translator. No differences were found between the English translation and the original English version of the questionnaire.

Also, in addition, to check convergent validity, 158 people completed the scales of Cooperation and Integrity ("NEO-FFI" - a shortened version of the questionnaire "NEO PI-R" by P. Costa and R. Makrae, adapted by V. Orl, I. Senin. Eagle, I. Senin), the "Tolerance Index" questionnaire (G. Soldatova et al.); BRAQ-24 (A. Bass and M. Perry adapted by S. Enikolopov, N. Tsybulsky). Here we assumed that helping behavior will be negatively related to aggression and positively to

cooperation, and the internalization of moral traits will be positively related to tolerance and negatively to hostility.

Statistical processing was performed in the program jamovi 2.3.24 using descriptive statistics, correlation, confirmatory factor analysis, reliability analysis using Cronbach's alpha and McDonald's ω , and parametric comparisons using Student's T-test. Since the questionnaire already has a known structure, we refused to conduct exploratory analysis.

Results of the study and their discussion

Descriptive statistics of the whole sample and by gender are presented in Table 1.

Table 1.

Descriptive statistics of moral identity questionnaire scales of the whole sample (N=303)

Scales of the questionnaire	Mean	Median	SD	SE	Minimum	Maximum	Asymmetry	SE	Kurtosis	SE
Internalization	27.0	29	0.391	6.81	5	35	-1.13	0.14	0.813	0.279
Symbolization	20.2	21	0.383	6.67	5	35	-0.141	0.14	-0.352	0.279

The assessment of the normality of the distribution of scales was carried out on the basis of asymmetry and kurtosis. The Internalization scale has a non-normal distribution as the asymmetry value is greater than the critical value of ± 0.230 for a sample of 300 people, the Symbolization scale has a normal distribution with the kurtosis values of both scales within the critical values of ± 0.818 .

Retest reliability

According to the data obtained, the Spearman test-retest correlations of the moral identity questionnaire scales are significant, although not too high: for the Internalization scale $\rho = 0.405$, $p < 0.001$; for the Symbolization scale $\rho = 0.438$, $p < 0.001$. Here we can cite the values obtained by the authors of the original version, which were 0.49 and 0.71 for the Internalization and Symbolization scales, respectively. The authors explained that such values confirm that moral identity is not a stable trait and should not be considered stable. It can be activated depending on the situation and different contexts. Its degree of stability in different situations may be determined by the presence of comparable or equivalent stimuli that activate it or by personality traits (Aquino, Reed, 2002). Thus, the results obtained indicate an acceptable level of reliability of the Russian version

of the questionnaire. Further areas of research may include identifying how a particular context influences the level of moral identity.

Assessment of the level of factor loadings of the questionnaire scales

The factor loadings were analyzed according to the distribution of statements on scales in the original version of the questionnaire. Table 2 presents the distribution of the questionnaire items by scales and the results of calculating the factor loadings of the questionnaire.

Table 2.

Factor loadings of the moral identity questionnaire (N=303)

Factor	Assertion	Weight	SE	Z	p	Standartized assessment
1	1. Мне было бы приятно быть человеком, который обладает этими характеристиками	1.196	0.0839	14.25	< .001	0.764
	2. Быть кем-то, кто обладает этими характеристиками, является важной частью меня	1.246	0.0871	14.30	< .001	0.761
	4. Мне было бы стыдно быть человеком, который имел бы эти характеристики*	-0.804	0.1328	-6.06	< .001	-0.362
	7. Наличие этих характеристик не очень важно для меня*	-0.871	0.1128	-7.72	< .001	-0.451
	10. Я очень хочу иметь эти характеристики	1.366	0.0795	17.19	< .001	0.872
2	3. Я часто ношу одежду, которая идентифицирует меня как обладателя этих характеристик	1.168	0.0827	14.12	< .001	0.738
	5. Мои занятия в свободное время (например, хобби) четко определяют меня как обладающего этими характеристиками	1.281	0.0849	15.08	< .001	0.772
	6. Те книги и журналы, которые я читаю, идентифицируют меня с такими характеристиками	1.295	0.0869	14.90	< .001	0.766
	8. Тот факт, что я обладаю этими характеристиками, транслируется другим людям благодаря моему членству в определенных организациях	1.103	0.0927	11.90	< .001	0.649
	9. Я активно участвую в мероприятиях, которые сообщают другим, что у меня есть эти характеристики	1.267	0.0988	12.83	< .001	0.689

Notation: * - reverse questions

Table 2 shows that the factor loadings are different from zero and all are significant. At the same time, items 4 and 7 of scale 1 (Internalization) have negative loadings, though small but significant. The reason for this is that they fall in the methodological factor due to their susceptibility to common effects due to the reverse direction of the wording.

As for the factor covariances of the questionnaire scales, based on the results obtained, according to which the standard score=0.780, $p < 0.001$, $SE=0.0346$, $Z=22.5$, we can talk about a good relationship between the questionnaire scales.

Verifying the validity of the questionnaire

The results obtained, when each scale was analyzed separately, were tested using Confirmatory Factor Analysis (CFA), which allows to analyze all the data of the questionnaire in the aggregate.

When the original author's theoretical model M1 of the questionnaire was verified by confirmatory analysis, the following consistency indices were obtained: $\chi^2 = 283$ with $df=34$, $p < 0.001$; $CFI=0.838$; $SRMR=0.074$; $RMSEA=0.156$ (90% CI 0.139 lower and 0.173 upper), which indicate that the model is not fully consistent. Based on the analysis of the modification indices, we added the error covariances of statements 4 and 7 of the first factor and obtained the M2 model with the following fit indices: $CFI=0.932$; $SRMR=0.0452$; $RMSEA=0.103$ (90% CI 0.0852 lower and 0.121 upper); $\chi^2 = 138$ with $df=33$, $p < 0.001$. To improve the model, we added the error covariances of statements 1 and 2 of the first factor. As a result of the improvements, the M3 model was obtained and confirmatory analysis showed a good fit of the theoretical two-factor M3 model to the original version of the questionnaire: $CFI=0.947$; $SRMR=0.0396$; $RMSEA=0.091$; 90% CI 0.0737 lower and 0.110 upper); $\chi^2 = 113$ with $df=32$, $p < 0.001$. For comparison, we performed confirmatory analysis of the single-factor model, but the model deteriorated: $CFI=0.732$; $TLI=0.655$; $SRMR=0.0987$; $RMSEA=0.201$. Thus, we adopt the M3 model (see Fig. 1).

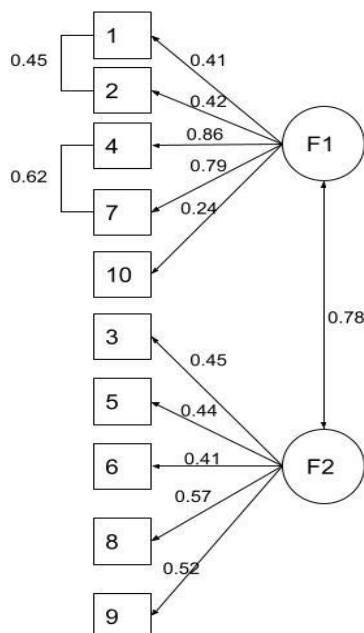


Figure 1. Confirmatory factor analysis model of the moral identity questionnaire

Notation: F1 - the first factor, "Internalization" scale, F2 - the second factor, "Symbolization" scale; 1-10 - figures represent items of the questionnaire statements

Checking the reliability of the questionnaire

The results of Cronbach's α and McDonald's ω of the questionnaire statements, scales and the entire questionnaire are presented in Table 3.

Table 3.

Cronbach's α and McDonald's ω of the questionnaire statements, scales and the whole moral identity questionnaire (N=303)

Statements/ Scales/ Entire questionnaire	Mean	SD	Cronbach's α	McDonald's ω	Element-remainder correlation
1	5.85	1.57	0.757	0.766	0.670
2	5.32	1.64	0.767	0.775	0.628
4*(reverse question)	5.45	2.22	0.810	0.837	0.524
7*(reverse question)	4.97	1.93	0.773	0.826	0.605
10	5.37	1.57	0.768	0.781	0.631
Internalization	5.39	1.36	0.811	0.830	-
3	3.81	1.59	0.811	0.812	0.673
5	4.35	1.66	0.806	0.808	0.687
6	4.21	1.69	0.811	0.812	0.670
8	3.93	1.70	0.828	0.832	0.605
9	3.94	1.84	0.819	0.823	0.642
Symbolization	4.05	1.34	0.846	0.848	-
Entire questionnaire	4.72	1.19	0.868	0.881	-

According to the obtained results of reliability analysis, the Cronbach's α coefficient of the questionnaire items is above 0.7 and that of the scales is above 0.8, which is within the reasonable range of Cronbach's α for personality test-questionnaires (Shmelev, 2013), and shows that all the scales of the questionnaire are reliable and the items perform well on the scales. McDonald's averaged total ω also has high consistency values: for the scales 0.88. The Internalization scale had the lowest consistency ($\alpha = 0.811$; $\omega = 0.830$). The Symbolization scale had higher consistency ($\alpha = 0.846$; $\omega = 0.848$). The whole questionnaire had acceptable consistency ($\alpha = 0.868$; $\omega = 0.881$).

Testing the discriminant and convergent validity of the questionnaire

Having investigated the factor structure of the questionnaire, we analyzed its convergent and discriminant validity. The results of the analysis are presented in Table 4.

Table 4.

Correlation matrix of the retest of moral identity scales with the self-esteem test (M.Rosenberg) and the Justice-Care questionnaire (S.Molchanov) (N=80).

Variables	SDI	SCS	ZOS	ZPR	ZPU	SelfEstRosen
Retest Internalization	-	0.294**	-	0.224*	0.337**	0.241*
Retest Symbolization	0.320**	0.270*	0.254*	0.232*	0.331**	-

Notation: * - $p < 0.05$; ** - $p < 0.01$; SDI - instrumental exchange "you-to-me, I-to-you" (pre-conventional level of moral development according to L. Kohlberg; SCS - social law and order (conventional level according to L. Kohlberg); ZOS - orientation toward one's self and self-interest (self-care - stage of moral development in C. Gilligan and N. Eisenberg); ZPR - reflexive empathic orientation (self-sacrifice - the stage of moral development in K. Gilligan and N. Eisenberg); ZPU - consideration of internalized values, protection of the rights of others (self-sacrifice - the stage of moral development in K. Gilligan and N. Eisenberg).

We assumed that moral identity will be positively correlated with the conventional and post-conventional level of moral development according to L.Kohlberg and with such stages of moral development according to K.Gilligan and N.Eisenberg as self-sacrifice and self-esteem (according to V.S.Molchanov's questionnaire). The "Justice-Care" questionnaire consists of two scales named after the name of the questionnaire. The "Justice" scale includes statements on the basis of agreement with which it is possible to judge on what level of moral development according to L. Kohlberg the respondent is at. The "Care" scale includes statements corresponding to the stages of moral development according to K. Gilligan and N. Eisenberg [8]. According to the obtained results, both scales of the moral identity questionnaire are significantly positively correlated according to Spearman, although moderately, with the second level of moral development according to L. Kohlberg and the second stage of moral development according to K. Gilligan and N. Eisenberg, i.e. the significance of possessing the qualities of a moral person is consistent with the beliefs that justice is where all people obey the law and norms accepted by society and the majority, with the orientation to law and order; with empathy, understanding, sympathy, compassion for others, even, in the case of disagreements, with the attitudes of helping those in need, disregarding their own benefit [8].

Spearman correlation analysis showed modest correlations with Rosenberg's self-esteem of the Internalization scale and no correlation with the Symbolization scale. It should be noted that in the

original version of the questionnaire, the Internalization scale was positively correlated with moral judgement and not correlated with self-esteem, while the Symbolization scale, on the other hand, was not correlated with moral judgement but was positively correlated with self-esteem. The correlation coefficients were low but significant. According to the authors of the questionnaire, the results obtained provide an argument in support of their assumptions that moral identity is distinct from all the constructs used in the study [14]. The results we obtained are consistent with the opinion of the authors of the questionnaire.

Next, we tested our hypotheses that the Symbolization scale would be negatively related to aggression and positively related to cooperation, and that the Internalization scale would be positively related to tolerance and negatively related to hostility. The results of the additional convergent validity test are presented in Table 5.

Table 5.

Correlation Matrix of Convergent Validity (N=158)

Scales/Variables	Tolerance as a trait	Cooperation	Integrity	Aggression	Hostility
Internalization	0.388***	0.363***	0.400***	-0.209*	-0.196*
Symbolization	-	0.191*	0.395***	-0.190*	-

Notation: * $p < .05$, *** $p < .001$

Significant correlations of the Internalization scale with personality traits were revealed: Tolerance as a trait, Cooperation, Integrity, as well as negative correlations with Aggression and Hostility. The Symbolization scale is significantly, though moderately, positively correlated with Cooperation and Integrity and negatively with Aggression.

To explain these results, let us turn to the scales of the used questionnaires. In the moral identity questionnaire, the Internalization scale diagnoses how important for respondents such qualities characteristic of a moral person as caring; compassionate; fair; friendly; generous; helpful; hard-working; honest; kind are and whether they want to possess them; the Symbolization scale shows to what extent these qualities are manifested in helping behavior - in volunteering. Tolerance as a personality trait is formed as a set of personality traits, attitudes and beliefs that largely determine a person's attitude to the surrounding world, i.e. not to take revenge, not to respond with rudeness to rudeness, to be tolerant to other people [10], which is combined with such characteristics of a moral person as compassionate, friendly, helping, kind. High scores on the Cooperation scale characterize responsiveness, friendliness, sensitivity and softheartedness, the ability to help others; at the opposite pole are people indifferent to the suffering of others, self-centered and thinking only of their own good [9]. Cooperation is a personality trait responsible for prosocial behavior and behavior that benefits others, reflecting the essential characteristics not only of a prosocial individual, but also of a moral one. The scores of the Integrity variable are high in those who are

motivated, disciplined, productive and responsible [9], which is also reflected in such characteristics of a moral person as fair and hardworking. It is easy to see that for respondents for whom it is important to possess the qualities of a moral person, and morality is a significant component for their self-identification [14], high values of moral identity are combined with such personality traits as Tolerance, Cooperation, and Integrity.

The obtained results confirm the hypotheses put forward. Clarifying the assumptions of the authors of the original version of the questionnaire about what personality traits can contribute to the stability of moral identity, in our opinion, they may be tolerance, cooperation and integrity. It can be hypothesized that a high moral identity, combined with reliability, responsibility, tolerance, empathy for others, and a desire for cooperation, is stable and can be manifested in all situations and contexts. Testing this hypothesis will be the focus of our future research.

Gender differences

Gender differences in moral identity are presented in Figures 1 and 2. Using Welch's T-criterion, differences were revealed: the male part of the sample has a higher level of Internalization compared to the female part of the sample: $t(268)=-2.590$, $p=0.01$, $d = -0.300$ (by Mann-Whitney, $U=9876$, $p=0.039$, $r=0.13$). Descriptive statistics are presented in Table 6. This fact means that for young men it is more significant to possess the qualities of a moral person, for their self-identification morality is more important than for women. Within the framework of social identity theory, moral identity is one of the possible components of a person's social self-schema [14]. On this basis, another component of social identity may be more significant for young women. It is characteristic that on the Symbolization scale there are no differences by gender and young women do not differ from men in terms of helping others in the form of volunteering. The results are presented in Fig. 2 and 3.

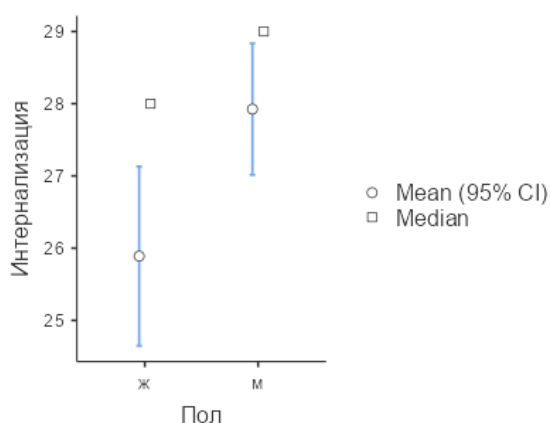


Fig. 2. Differences in the mean of the internalization scale in young men and women

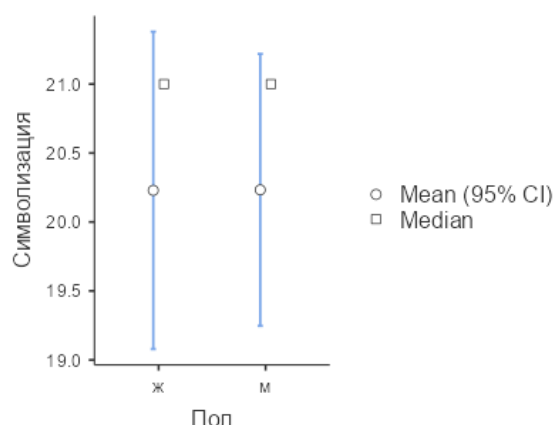


Fig.3. Differences in the mean of the symbolization scale in young men and women

Tab. 6

Descriptive statistics of the scales of the moral identity questionnaire in the male and female part of the sample

Scales of the questionnaire	Mean	Median	SD	Standard error	Minimum	Maximum
Internalization (w - N=144)	25.9	28.0	0.634	7.60	5	35
Internalization (m - N=159)	27.9	29	0.465	5.86	9	35
Symbolization (w - N=144)	20.2	21.0	0.587	7.04	5	35
Symbolization (m - N=159)	20.2	21	0.503	6.34	5	33

Findings and Conclusion

The results of the conducted psychometric analysis confirm the suitability of the adapted Russian version of the Moral Identity Questionnaire. The advantage of the questionnaire is its compactness and low labor intensity in comparison with existing methods of diagnostics of moral judgments. The identified two-factor structure of the adapted version corresponds to the theoretical provisions of the original version of the questionnaire and includes the scales "Internalization" and "Symbolization".

An important result of the study is the discovered relationship between the components of the moral identity questionnaire and such traits of the Big Five as Integrity and Cooperation, as well as Aggression. According to the authors of the original version of the questionnaire, moral identity is not stable and is subject to activation depending on the situation in which the subject finds himself. Its stability is determined by personality traits [14]. We can hypothesize that the stability of moral identity may be mediated by traits such as tolerance, integrity, and cooperation. Subsequent work may seek to investigate the relationship of personality traits and moral identity in different socio-political settings, and with malevolent creativity.

According to the results of the study, we came to the following conclusions: confirmatory analysis confirmed the two-factor model of the original questionnaire; the reliability of the questionnaire is high; convergent validity is confirmed; the retest is modest, but only confirms the assumptions of the authors of the questionnaire about the situational nature of moral identity. According to the already available results, we can say that the questionnaire can be used for research purposes, as well as in the assessment, monitoring and correction of the moral and psychological state of older adolescents and young people.

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