

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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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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