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**CLUSTER STRUCTURING FEATURES OF COPING  
MECHANISMS IN ADOLESCENTS**

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**Abstract**

The article studies the specifics of the manifestation of useful conceptual structuring schemes and the relationship between preferred coping strategies in adolescents with indicators of the productivity of intellectual activity (school performance and general intelligence score). The high intensity of coping indicates a pronounced maladjustment, which is confirmed by negative relationships with indicators of intelligence. The sample consisted of 158 adolescents aged 16 years. Research methods: data of the student's electronic diary and questionnaire "Methods of coping behaviour" Lazarus. Results: the structure of coping behaviour strategies consists of three clusters, two of which involve active problem-oriented actions and the third is passive, avoidant behaviour pattern. A low level of intensity of the coping strategy indicates an adaptive variant of coping, and an average level indicates the presence of an adaptive potential of a person in a borderline state without significant connections with the productivity of intellectual activity. Nevertheless, all copings can be conditionally divided into "active, rational" and "passive, emotional", where the first group is associated with semantic (conceptual) abilities, for example, "self-control". In addition, the second one is creative, for example, "conflict" and "escape-avoidance".

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## 1. Introduction

Increasing demands for compliance with ever-increasing requirements from the environment and the labor market provoke and support the emergence of difficult, stressful life situations (Amitova, 2021). The fight against the intensification of psycho-emotional stress requires the individual to actualize all psychological resources (Prokhorov et al., 2021).

In particular, adolescents face the problems of self-determination, choosing the direction of future development (continuing education or going to work), etc., which increases the relevance of studying the features of their choice of coping behaviour strategies (Antsyferova, 2009; Kholodnaya, 2021). It is during such critical age periods that the greatest changes are manifested in the intellectual, physical, physiological, emotional, motivational (Rasskazova, 2021), etc. areas of activity, while the most adaptive and useful strategies are intellectual control (Kholodnaya & Khazova, 2017; Prokhorov, 2021), responsibility (Iskenderov, 2021) and so on (Aleksandrov et al., 2017, Khachaturova; 2015, Kryukova & Kuftyak, 2007).

The study is aimed at studying the specifics of the manifestation of useful conceptual structuring schemes and the relationship between preferred coping strategies in future specialists with indicators of the productivity of intellectual activity (school performance and general intelligence score).

## 2. Purpose of the Study

Thus, the objective is to search for the specifics of the manifestation of useful conceptual structuring schemes and the relationship between preferred coping strategies with indicators of the productivity of intellectual activity.

The subject - relationship between older adolescents' coping strategies and intellectual school performance, the object - older adolescents.

## 3. Research Questions

The theoretical hypothesis of the study is based on the premise that the high level of cognitive abilities (in terms of school performance and analytical intelligence) is interconnected with problem-oriented coping strategies, suggesting a change in the cognitive assessment of a problem situation (problem solving planning, taking responsibility), as suggested by Antsyferova in 1994.

## 4. Research Methods

The article describes the results of the application of two different quantitative methods - the data of the electronic diary of a student (information about the overall performance of students in all subjects) and the questionnaire "Methods of coping behavior", suggested by Lazarus in Khachaturova's adaptation in 2015.

Variables under study are indicators of intelligence, measured by electronic diary (teachers as experts set average scores for all school subjects, that from the overall score for the success of school activities), and preferred coping strategies, measured by the questionnaire "Methods of coping behavior". The technique "Methods of coping behavior" is designed to determine coping mechanisms, ways to

overcome difficulties in various areas of mental activity, coping strategies: confrontation; distancing; self-control; seeking social support; acceptance of responsibility; escape-avoidance; planning a solution to the problem; positive reevaluation.

The success of school intellectual activity is shown by the assessment diary, which is an indicator of a student's mental development. This method has proven itself reliably in psychological research. The questionnaire "methods of coping application" is designed to determine coping mechanisms, ways to overcome difficulties in various spheres of mental activity, coping strategies. This questionnaire is considered the first standard methodology in the field of coping measurement. The methodology was developed by R. Lazarus and S. Folkman in 1988, adapted by T.L. Kryukova, E.V. Kuftyak, M.S. Zamyshlyayeva in 2004.

The study took one academic hour (45 minutes), during which the study participants got acquainted with the structure and instructions of the questionnaire and filled it out. Each subject is offered 50 statements concerning behavior in a difficult life situation. The subject should evaluate how often these behaviors manifest themselves in him. Then the researcher collected the methodology forms and processed them according to the key. The researcher obtained data on the indicator "school intellectual success" from the database of the school electronic diary.

Coping strategies are what a person does to cope with stress. The concept combines cognitive, emotional and behavioral strategies that are used to cope with stress, and in general, with the psychological difficult situations of everyday life. In turn, intelligence helps to expand and further develop the variability and adaptability of coping behavior. To analyze such a complex system of interdependent concepts, it is necessary to use cluster analysis, which understands the initial data by identifying the cluster structure. This method divides the samples into groups of similar objects, which simplifies further data processing and decision making by applying its own analysis method to each cluster (the "divide and conquer" strategy). It defines the basic structure (parameters) of the specifics of the manifestation of intelligence and their relationship with preferred coping strategies. Accordingly, this type of analysis is suitable for solving research problems.

#### **4.1. Study participants**

The sample consisted of 158 teenagers of senior adolescent age in the municipal budgetary educational institution "Secondary School № 31" of Khimki, Moscow region, aged 15-18 years (median - 16 years). The study involved middle and high school students (grades 8, 9 and 10), 71 boys and 87 girls, respectively.

## **5. Findings**

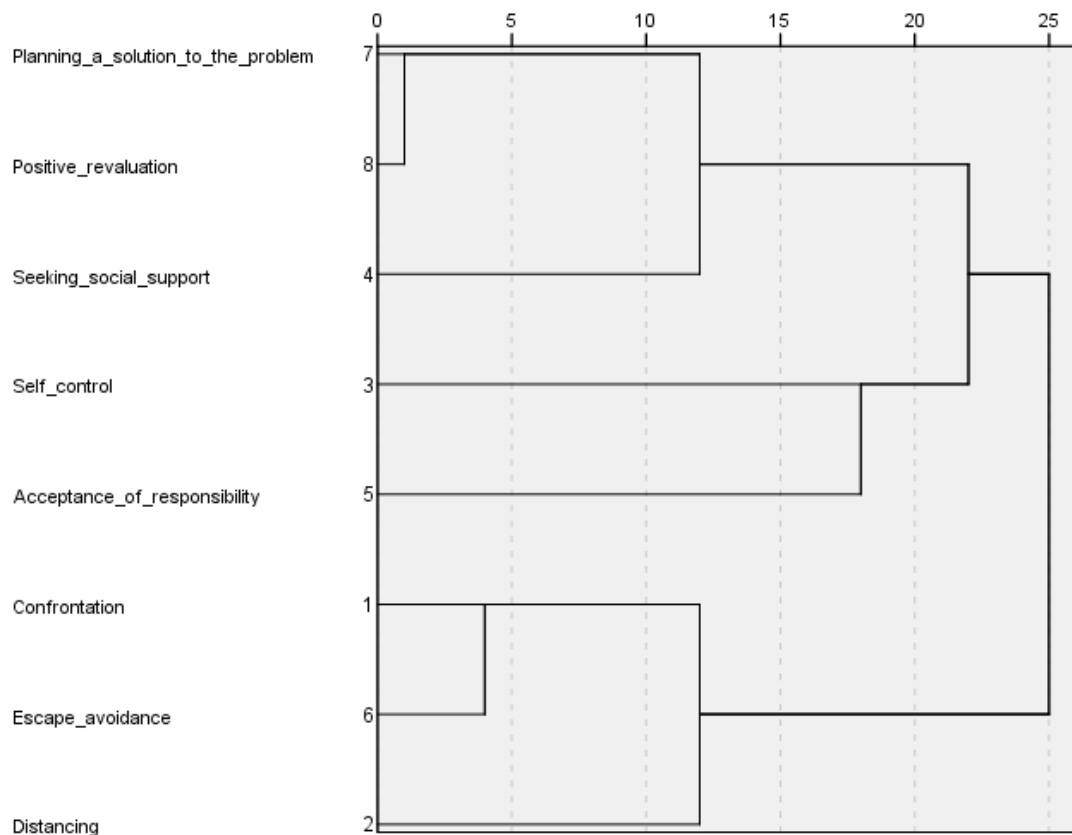
Table 1 presents data from cluster analysis of preferred coping strategies and indicators of the productivity of intellectual activity (school performance and general intelligence score):

**Table 1.** Cluster matrix including indicators of intelligence and coping strategies.

Variables	Cluster		
	1	2	3
Conflict	7,37	8,28	11,42
Distancing	8,70	7,92	12,13
Self control	10,23	12,86	14,56
Social support	7,97	9,80	12,08
A responsibility	6,90	6,61	9,17
Flight/Avoidance	11,53	8,78	15,27
Planning	8,47	13,28	13,88
Positive reevaluation	9,13	13,78	15,58

The high tension of coping indicates a pronounced disadaptation in the third cluster, which is confirmed by negative relationships with intelligence indicators. A low level of intensity of the coping strategy indicates an adaptive variant of coping, and an average level indicates the presence of an adaptive potential of a person in a borderline state without significant connections with the productivity of intellectual activity. Nevertheless, all copings can be conditionally divided into "active, rational" and "passive, emotional", where the first group is associated with semantic (conceptual) abilities, for example, "self-control. In addition, the second - with creative ones, for example, "conflict" and "flight-avoidance".

The class dendrogram (Figure 1) confirms the correctness of the model obtained.



**Figure 1.** Class dendrogram of indicators of intelligence and coping strategies

The dendrogram shows the presence of three clusters, 2 of which involve active resolution of a problem situation through rational actions or access to a social resource, while one cluster consists entirely of highly emotional "passive" strategies that do not involve resolution of complexity "here and now". It is also clearly seen in Figure 1 that it is the "passive" copings that are the last to combine, which once again emphasizes their isolation.

More detailed information about the resulting cluster structure is presented in Table 2, while Table 3 shows the division of the entire sample into classes according to the obtained groups of coping behavior strategies:

**Table 2.** ANOVA cluster matrix including indicators of intelligence and coping strategies

Variables	Cluster		Error		F	Significance
	Mean square	Degree of freedom	Mean square	Degree of freedom		
Conflict	232,851	2	8,294	155	28,076	0,000
Distancing	303,944	2	7,961	155	38,181	0,000
Self control	193,372	2	7,773	155	24,877	0,000
Social support	190,516	2	7,083	155	26,896	0,000
Responsibility	116,988	2	6,200	155	18,868	0,000
Flight/Avoidance	675,673	2	9,838	155	68,680	0,000
Planning	323,133	2	6,719	155	48,094	0,000
Positive reevaluation	425,477	2	6,878	155	61,865	0,000

**Table 3.** Division of the entire sample into classes according to the obtained groups of coping behavior strategies

Cluster	Amount
1	30
2	64
3	64

The first merged cluster deserves special attention as the first merged. Its specificity lies in the fact that the coping behavior strategies included in it perform a single function, which can be called planning. For example, "problem solving planning" does not imply active actions, but instead requires high cognitive activity aimed at resolving the difficulty that has arisen. "Positive reappraisal" requires an outside perspective, a kind of metacognitive and philosophical approach, while "search for social support" is simply a collection of all available resources, including external ones.

The last of the united clusters is represented by highly emotional coping strategies that involve a pause between creating a problem and resolving it. This cluster combines strategies of confrontation, distancing and avoidance. All strategies are not aimed at solving the actual problem and are characterized by avoiding it, evading the analysis of the situation. This composition of the cluster indicates its "passivity" (Bogomaz & Filonenko, 2012; Bykasova & Kalyagina, 2013; Trifonova, 2021). However, the applied methodology does not allow us to draw such an unambiguous conclusion. So, Kholodnaya (2021) indicates that behind the choice of these strategies may be the need for more time to think about the decision, or the

economical use of one's mental resources due to their scarcity. Also possible is the temporary nature of such a "refusal" to solve the problem due to different priorities of a person.

The median position is occupied by highly cognitive, active coping strategies of "self-control" and "taking responsibility". It is important to note that a number of authors, for example, Rokitskaya (2018, p. 220) believes that "in adolescence, coping behavior is in the phase of active formation and is an important predictor of psychological well-being, health and success in activity. In addition, older teenagers are oriented towards seeking social support. On the one hand, this indicates the active use of the social mechanism in solving emerging difficulties. On the other hand, excessive focus on the rationality of the decision made can lead to an underestimation of the intuitive decision, on the one hand, and downplaying one's emotions and feelings, on the other. In addition, excessive use of only such strategies can limit creativity, which is more spontaneous and flexible.

Thus, cluster analysis allows us to distinguish three groups (styles) of coping strategies based on their functional load: planning, active rational solution of a difficult life situation associated with the preference for elements of meta-analytical abilities, and avoidance of making a momentary decision, mental "passivity" and at the same time - "emotions".

## 6. Conclusion

The structure of coping behavior strategies is revealed, consisting of three clusters, two of which involve active problem-oriented actions, and the third is passive, avoidant behavior pattern.

Thus, evidence was obtained that the subdivision of coping strategies into cognitively loaded problem-oriented and emotional avoiding solving a problem situation.

Nevertheless, judging by our data, high intellectual productivity is associated with a low level of "passive" avoidance.

In addition, it should be said, that the average school performance indicators, revealed in the study, suggest that ignoring the role of the conceptual factor in the structure of intelligence and the system of mechanisms for regulating social behaviour (i.e. coping strategies) has dramatic consequences - primarily for educational practice.

In other words, there is a certain negative trend in the modern Russian school: the development of basic intellectual abilities, namely conceptual abilities (or the ability to conceptual thinking) is not ensured in the learning process (Yasyukova, 2020).

This trend is due to a number of factors. Therefore, we can talk about the presence of basic educational deficits: a low level of understanding of educational material, a low level of ability to identify and generalize hidden connections and patterns, a low level of semantic reading, a low level of ability to generate structured and original author's texts. Secondly, there is a negative impact on the part of the family, because in a modern family, parents devote little time to live communication with the child, including in the form of discussing various problems with him, analyzing different points of view, practicing family reading, etc.

Recommendations: 1) changing the content of school education and teaching methods in the direction of purposeful formation of students' conceptual abilities (more broadly, solving the problem of their intellectual education, because the ability to conceptual thinking is the basis of the intellectual culture

of the individual; 2) expanding the range of circles, profiles, special courses in various subjects with an emphasis on in-depth (theoretical) study of the relevant subject area on independent intellectual creativity of students; 3) work with parents aimed at stimulating them to an active dialogue with a child of any age, including problem-oriented conversations, joint reading in the presence of a home library, etc.

## References

- Aleksandrov, Y. I., Svarnik, O., Znamenskaya, I. I., Kolbeneva, M. G., Arutyunova, K. R., Krylov, A. K., & Bulava, A. I. (2017). *Regression as a Stage of Development*. Publishing house of Moscow University. <https://doi.org/10.17759/sps>
- Amitova, S. B. (2021). Psychological mechanisms and strategies of cooperation behavior in adolescents. Concepts of sustainable development of science in modern conditions. Ying collection of articles on the results of the International Scientific and Practical Conference. Sterlitamak, Chelyabinsk, December 09, 2021. Limited Liability Company "International Research Agency" (Ufa). 104-107.
- Antsyferova, L. I. (1994). Personality in difficult living conditions: rethinking, transformation of situations and psychological defense. *Psychological journal*, 15(1), 3-18. <https://doi.org/10.18500/2304-9790-2016-5-2-151-156>
- Bogomaz, S. A., & Filonenko, A. L. (2012). Differences in the choice of coping strategies by persons with different tendencies to manipulative behavior. *Siberian Psychological Journal*, 10, 122-126. cit. according to Nazarova M.M. (2017) "Socio-psychological factors of coping strategies in younger teenagers". Bachelor Dissertation Saratov.
- Bykasova, N. I., & Kalyagina, E. A. (2013). Comparative analysis of coping strategies among older adolescents with different levels of academic achievement. Personality, family and society: issues of pedagogy and psychology. Founders: Novosibirsk: Association of researchers, *Siberian Academic Book*, 35(2), 81-87.
- Iskenderov, I. E. (2021). Influence of cooperation behavior strategies on satisfaction with education of higher school students. Prospects for the development of modern education. Materials of the III International Scientific and Practical Conference. October 28, Nizhnevartovsk. NVGU, 215-219. <https://doi.org/10.5281/zenodo.5707347>
- Khachaturova, M. R. (2015). Coping behavior of a person with conflicts during adaptation to learning. In: Collection of materials of the All-Russian psychological forum "Education. Upbringing. Development-2015", Sochi: AVK Press, 102-108.
- Kholodnaya, M. A., & Khazova, S. A. (2017). The Phenomenon of Conceptualization as a Basis for the Productivity of Intellectual Activity and Coping Behavior. *Psychological Journal*, 5, 5-17. <https://doi.org/10.7868/S0205959217050014>
- Kholodnaya, M. A. (2021). "Splitting effect" of creativity indicators. In D. B. Epiphany (Ed.), *Psychology of creativity and giftedness. Collection of articles of the All-Russian scientific-practical conference with international participation. In 3 parts* (pp. 14-18). Moscow. [https://doi.org/10.53677/9785919160441\\_14\\_18](https://doi.org/10.53677/9785919160441_14_18)
- Kryukova, T. L., & Kuftyak, E. V. (2007). Coping questionnaire (adaptation of WCQ methodology). *Journal of Practical Psychologist*, 3, 93-112.
- Prokhorov, A. O., Chernov, A. V., Yusupov, M. G., & Reshetnikova, I. S. (2021). The development of self-regulation of students' mental states in the process of education at the university. Psychology. Psychophysiology. *South Ural State University (National Research University)*, 14(4), 51-61. [https://doi.org/10.51217/npsyresearch\\_2021\\_01\\_04\\_04](https://doi.org/10.51217/npsyresearch_2021_01_04_04)
- Prokhorov, A. O. (2021). Mental mechanisms of regulation of mental states. *Experimental Psychology*, 14(4) 182–204. <https://doi.org/10.17759/exppsy.2021140410>
- Rasskazova, E. I. (2021). Subjective importance of work and time allocation: relationship with subjective well-being and work engagement under different job demands. *Counseling Psychology and Psychotherapy*, 29(4), 49-72. <https://doi.org/10.17759/cpp.2021290404>

Rokitskaya, Y. A. (2018). Factor structure of adolescents' coping behavior. *Bulletin of the Chelyabinsk State Pedagogical University*, 3, 220-233.

Trifonova A. V. (2021). Interconnection of cognitive abilities and coping strategies in future specialists. *Science*, 12(1), 130-134.