

Coping factors underlying academic achievement in senior adolescence

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Educational activity is accompanied by dramatic qualitative changes in the structure of human consciousness associated with the search, acquisition and assimilation of new information, its use to increase the productivity of one's activities in various fields. Such dramatic changes are accompanied by stress and, accordingly, the formation and development of methods for overcoming it, coping, aimed at reducing the negative consequences of difficult life situations, their resolution or avoidance. The subject of the research are common factors underlying coping strategies of a complex object — school performance in older adolescents (158 older adolescents aged 15–17 years with different levels of academic achievement). The study used data of the student's electronic diary and questionnaire "Methods of coping behavior". According to the results of the Wilcoxon criterion, the choice of coping behavior strategy in older adolescence is not determined by the gender or age of the subject of activity. A similar situation was obtained with respect to academic performance indicators. The explanation of the lack of influence of gender and age on academic performance can be explained by the cumulative score on this very "school intellectual success", which levels the differences between individual subgroups in individual subjects. The results of factor analysis indicate groups (styles) of coping strategies based on their "passivity", and at the same time — "emotionality" and "activity", coupled with a preference for rationality with elements of meta-analytical abilities, their social/individualistic and problematic oriented focus. Moreover, cognitive abilities are inter-related with problem-oriented coping strategies.

Keywords: coping strategy, school performance, senior adolescence.

Introduction

Coping behavior is a set of mechanisms, ways to overcome difficulties in various spheres of mental activity, which are aimed at increasing the adaptation of adolescents to the changing conditions of the external or internal environment. Difficult life circumstances in the individual consciousness differ in the degree of significance (Bykasova, Kalyagina, 2013). Therefore, for example, L. I. Antsyferova defines "coping" as an individual way of interaction between the subject of activity and the situation in accordance with its own logic, significance and psychological capabilities (Antsyferova, 1994). N. I. Bykasova and E. A. Kalyagina consider "coping" as "constantly changing cognitive, emotional and behavioral attempts to cope with specific external and/or internal requirements, which are assessed as stress or exceed a person's resources to cope with them" (Bykasova, Kalyagina, 2013, p. 83).

We should point out that all the strategies involved differ in the prevalence of cognitive and emotional-personal components of activity. However, one should not operate with the concepts of productivity or unproductiveness of any of the strategies. According to Rasskazova et al. (Rasskazova et al., 2013, p. 87), “difficulties in identifying productive coping strategies are also related to the fact that different meanings can be hidden behind the same behavior”. A good example is the turning to religion, which can have both positive and negative consequences for psychological well-being, depending on the meaning and content of this behavior. The effectiveness of a particular strategy depends on the characteristics of the current situation, the degree of actualization of the strategy itself, selectivity of application and available resources. Nevertheless, a number of coping behavior strategies — self-control, responsibility, planning — are associated with the reflective cognitive component of the activity, while others, for example, conflict, distancing — with various ways of emotional solution to a problem situation. N. I. Bykasova and E. A. Kalyagina indicate: “...cognitive coping strategies aimed at resolving stressful situations contribute to the adaptation of adolescents to the conditions of the social environment. Emotional coping strategies aimed at avoiding problems lead to maladjustment of the adolescent, his isolation, decreased self-esteem, increased psychological anxiety, etc.” (Bykasova, Kalyagina, 2013, p. 85). Accordingly, in accordance with this position, one should expect the prevalence of cognitively loaded coping strategies in schoolchildren who are performing well, and a preference for more emotional coping strategies associated with avoiding active problem-solving in poorly performing schoolchildren (Aleksandrov et al., 2017; Trifonova, 2021).

The available data on the relationship between intellectual abilities and strategies for coping with a difficult life situation are extremely heterogeneous: either it is noted that subjects with higher rates of intellectual abilities mainly choose problem-oriented coping strategies, or there is no relationship between the level of intelligence and the choice of a particular coping strategy, or it is stated the tendency of individuals with high rates of intellectual productivity to choose social and emotional coping strategies (Ageeva, Latysheva, 2021).

It should be noted that there are very few works devoted to the study of the regulatory role of general intelligence (intellectual abilities) in coping behavior. In addition, attention is drawn to the fact that these studies describe very ambiguous relationships between the level of psychometric intelligence and strategies for coping with a difficult life situation. In some studies, the level of intelligence — average and above average — is considered as a factor in effective coping (Frydenberg, 1997; Werner, 2000). Other studies state that there is no connection between intelligence and effective coping. Thus, pupils of auxiliary schools did not differ significantly in the severity of the problem solving strategy from pupils of secondary schools, i. e. the tendency to problem-oriented coping manifests itself regardless of the level of intelligence (Sierralta, 2000). In the study by S. A. Khazova selected a group of intellectually gifted high school students (grades 10–11) using a complex criterion (high rates of psychometric intelligence and creativity; real intellectual achievements in the form of educational success, participation in olympiads and the performance of research work; originality of intellectual activity and motivation). The most conflicting results were obtained when studying the effect of IQ on coping behavior (based on multiple regression analysis): this effect is negative in relation to the Social Support and Self-Blame strategies, but positively in relation to the choice of Ignore, Friendship and Positive Focus strategies. Characteristically, none of the indicators of a high level of intellectual capabilities (the level of psychometric intelligence, creativity, real achievements) was associated with the choice of “productive”

coping strategies (such as Problem Solving, Work and Achievement) (Khazova, 2004; 2010). Similar results were obtained in the study by N. A. Markelova on a sample of high school students aged 16–17. When comparing a subgroup of high school students with high IQ scores and non-verbal creativity, it turned out that “gifted” high school students, compared with two other subgroups with lower intelligence and creativity scores, use coping strategies such as Anxiety (anxiety about the consequences and the future in general) less frequently. Miracle (dreams and hope for a happy event), Non-Coordination (refusal to act to the point of painful conditions), Discharge (tears, aggression, turning to alcohol and drugs), Ignoring (consciously blocking the problem), Self-Blame (personal responsibility for the problem), Distraction (entertainment in society), and also less often resort to the social style of coping, i. e. are not inclined to discuss their problems with other people and seek professional help. Instead, they are more likely to use a coping strategy called Withdrawal (refusing to let others in on their own concerns). At the same time, high school students with signs of giftedness are not inclined to use productive copings Problem Solving and Work, Achievements (Markelova, 2013). In addition, in the study by S. V. Pazukhina (Pazukhina, 2021, p. 121) shows the trend of the predominant development of thinking in images in modern high school students (which is typical for clip thinking) and the sinking of indicators of logical thinking, which is reflected in the uncritical perception of information, the illogicality of the choices made, the lack of desire to search for the most a rational way of solving a problem, the ability to generalize large databases, etc. With purposeful systematic work on the development of different types of thinking in high school students, the most mobile in terms of change are symbolic and creative types of thinking. Other types, with appropriate work, also develop, but at a slower pace. A similar situation of “clip thinking”, coupled with the mosaic nature of consciousness, is noted by A. L. Krainov (Krainov, 2019). This way of thinking is characterized by uncriticality (Bogacheva, Sivak, 2019), impulsivity (Romashina, Teterin, 2014), difficulties in generalizing the material (Rotenberg, Bondarenko, 1990), etc.

Research Questions

The theoretical hypothesis of the study: behind the set of coping behavior strategies lies a more general feature that unites them, which is associated with older adolescents' success.

Purpose of the Study

Thus, the objective is to search for common factors underlying particular behavioral characteristics (coping strategies) of a complex object, namely, school performance.

The object — coping strategies and school performance, the subject — factors underlying coping strategies and school performance.

Study participants

The sample consisted of comprised 158 older adolescents aged 15–17 years with different levels of academic achievement who are studying in secondary school of the Moscow region.

The study involved middle and senior school students (8th, 9th and 10th grades).

Methods of research

Data of the student's electronic diary.

Questionnaire "Methods of coping behavior" Lazarus (Kryukova, Kuftyak, 2007).

The technique 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.

Results

Since copings are compared with the real student's achievements in the study, it is especially important to describe the study participants in terms of their school success (Table 1).

Table 1. Descriptive statistics of the variables ($N = 158$)

Variables	Minimum	Maximum	Mean	Standard deviation
Intellectual achievement	3.00	5.00	4.23	0.40
Conflict	2.00	18.00	9.23	3.33
Distance	0.00	18.00	9.47	3.37
Self control	3.00	20.00	13.08	3.21
Social support	3.00	18.00	10.41	2.98
Responsibility	2.00	19.00	7.71	2.73
Escape	2.00	21.00	11.53	4.26
Planning	2.00	18.00	12.81	3.09
Positive reevaluation	4.00	20.00	13.43	3.46

According to the Wilcoxon criterion, no significant differences in gender and age for "Academic performance" were found ($N = 158$; $p \leq 0.000$). A similar situation is also observed for all coping strategies that are analyzed in the work. Accordingly, an intermediate conclusion can be drawn that the choice of a coping behavior strategy in older adolescence is not conditioned by the gender or age of the subject of activity. The explanation for the lack of influence of gender and age on academic performance indicators can be explained by the cumulative score on this very "school intellectual success", which levels the differences between individual subgroups, for example, boys and girls, in individual subjects. For example, when assessing intellectual achievements in the form of writing (language component), the female part of the sample had higher indicators, and when considering academic performance in natural sciences, such as physics and mathematics, the male part of the sample (Sipovskaya, 2017).

Intellectual, in particular analytical, abilities contribute to the variability and mobility of coping behavior. Whereas the factor analysis method determines the basic structure (parameters) of the specificity of the manifestation of general cognitive abilities and their

Table 2. Factor matrix including indicators of analytical intelligence and coping strategies

Variable	Factor loadings	
	1	2
Factor 1 (36 %): Emotionality — responsibility		
Conflict	0.74	0.10
Distance	0.66	0.18
Social support	0.56	0.41
Responsibility	0.50	0.36
Escape	0.80	0.01
Factor 2 (14 %): Intellectual productivity — rationality		
Academic performance	-0.33	0.50
Self control	0.29	0.60
Planning	0.15	0.72
Positive reevaluation	0.30	0.75

Note: The variables included in the corresponding factor with the highest weight are highlighted.

relationship with the preferred coping strategies. Accordingly, this type of analysis is suitable for solving research problems.

Table 2 presents data from factor analysis of indicators, namely, cognitive abilities and coping strategies, in terms of indicators of school performance and strategies for coping behavior. The resulting factor structure consists from two identified factors that explain 50 % of the total variance. Kaiser criterion determined the number of factors.

Table 3. Factor matrix including indicators of coping strategies

Variable	Factor loadings	
	1	2
Factor 1 (36 %): Emotionality — responsibility		
Conflict	0.67	0.22
Distance	0.67	-0.20
Social support	0.46	0.51
Responsibility	0.57	0.28
Escape	0.87	-0.04
Factor 2 (14 %): Intellectual productivity — rationality		
Self control	0.33	0.54
Planning	0.00	0.81
Positive reevaluation	0.21	0.84

When analyzing the factor structure of only coping strategies by the criterion of academic success, a structure was obtained, which is shown in Table 3. This structure confirms the previously obtained conclusion that it is cognitive coping that character-

izes academic success in older adolescence, and such coping as the search for social support, conflict appears in both the first and the second in the fourth factor, but “self-control”, on the contrary, is included in the final matrix with a negative indicator. Thus, we once again find evidence of the active formation of a system of coping behavior structure.

Discussion

The first factor combines strategies of confrontation, distancing, seeking social support, accepting responsibility and avoiding. All strategies, except for taking responsibility and seeking social support, are not aimed at solving an urgent problem and are characterized by detachment from it, evasion without analyzing the situation and taking any action, which allows us to call them passive (Bogomaz, Filonenko, 2009; Bosniuk et al., 2018; Sipovskaya, 2022; Kibalchenko et al., 2022). On the other hand, as Kholodnaya states, such a situation describes an eclectic use of one’s mental resources or a temporary rejection of solutions to problem situations (Kholodnaya, 2021). As an example of this approach, we can cite the words of the hero of the cinema, Scarlet O’Hara: “I’ll think about it tomorrow”. The combination of these scales with the strategy of taking responsibility may indicate that students consciously choose such strategies of behavior, understanding and accepting the consequences of their inaction. For the difficulties that have arisen, they will blame themselves, and not other people or circumstances. Probably, in older adolescence, schoolchildren have already formed mental resources that would regulate the understanding and acceptance of their role and responsibility for the actions they take. This interpretation contradicts the words of Yu. A. Rokitskaya, who notes 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 adolescents are focused on seeking social support. On the one hand, it speaks of the active use of the social mechanism in solving emerging difficulties” (Rokitskaya, 2018, p. 220). On the other hand, over-focusing on temporary social assistance can form a dependent attitude and/or excessive expectations in relation to others.

School performance indicators and conditionally active coping strategies were included in the second factor: self-control, planning a solution to the problem, and positive reappraisal. Self-control and planning for solving a problem in their positive sides have the ability to purposefully and systematically resolve a problem situation. True, to the detriment of potential ignorance of the emotional solution to the problem, intuitiveness and spontaneity in behavior (inflexibility and insensitivity). While a positive reappraisal, on the contrary, involves attempts to overcome negative experiences in connection with a problem through its positive rethinking, considering it as a stimulus for personal growth. This last coping strategy is characterized by an orientation towards transpersonal, philosophical comprehension of the problem situation, its inclusion in the broader context of the individual’s work on self-development. Thus, this factor describes the most harmonious situation of intellectual development.

Thus, the factorial analysis makes it possible to single out groups (styles) of coping strategies based on their “passivity”, and at the same time — “emotionality” and “activity”, coupled with a preference for rationality with elements of meta-analytical abilities, their social/individualistic and problematic oriented focus.

Conclusion

A single factor was found that includes indicators of analytical intelligence and coping strategies for control, problem solving planning and positive evaluation. This may indicate that adolescents with a higher level of intellectual achievement tend to use these strategies, which are considered problem-oriented, rationalistic (as opposed to emotional) and active.

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Факторы совладания, лежащие в основе успешности академической деятельности в старшем подростковом возрасте

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Учебная деятельность сопровождается резкими качественными изменениями в структуре сознания человека, связанными с поиском, получением и усвоением новой информации, использованием ее для повышения продуктивности своей деятельности в различных сферах. Такие резкие изменения сопровождаются стрессом и, соответственно, формированием и развитием методов его преодоления, дистанцирования от него или адаптации к нему — стратегий совладания, направленных на уменьшение негативных последствий трудных жизненных ситуаций, их разрешение или избегание. Предметом исследования является поиск общих факторов, лежащих в основе стратегий совладания со сложным объектом — успеваемостью в школе у старших подростков (158 старших подростков 15–17 лет с разным уровнем успеваемости, которые проходят обучение в средней общеобразовательной школе города Химки). В исследовании использовались данные электронного дневника школьника и опросника «Способы совладающего поведения». Согласно результатам критерия Вилкоксона, выбор стратегий копинг-поведения в старшем подростковом возрасте не определяется ни полом,

ни возрастом субъекта деятельности. Аналогичная ситуация сложилась и по показателям успеваемости, то есть степени успешности интеллектуальной (школьной) деятельности. Объяснение отсутствия влияния пола и возраста на успеваемость можно объяснить суммой баллов по этой самой «школьной интеллектуальной успешности», которая нивелирует различия между отдельными подгруппами по отдельным предметам. Результаты факторного анализа указывают на группы (стили) копинг-стратегий, основанные на их «пассивности», и одновременно — «эмоциональности» и «активности», сопряженной с предпочтением рациональности с элементами метааналитических способностей (например, такой копинг-стратегии, как «положительная переоценка», предполагающая взгляд со стороны, с другой перспективы, ориентированность на надличностное, философское осмысление проблемной ситуации, включение ее в более широкий контекст работы личности над саморазвитием), их социальной/индивидуалистической и проблемно-ориентированной направленности. Более того, когнитивные способности связаны с проблемно-ориентированными копинг-стратегиями.

Ключевые слова: копинг-стратегия, школьная успеваемость, старший подростковый возраст.

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