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PSYCHODIAGNOSTICS OF ACADEMIC SELF-REGULATION FOR MIDDLE SCHOOL PUPILS

The paper characterizes the levels and the means of psychodiagnostics of academic self-regulation for middle school pupils: an intrinsic self-regulation or motivation, which assumes the interest and enjoyment during the activity, and an extrinsic regulation (identification, introjected and external regulation), which requires the external values of learning activity. The standardization of «Academic Self-regulation for middle school pupils Questionnaire» and its validity and reliability are shown.

Keywords: academic self-regulation, learning activity, intrinsic self-regulation, identification, introjected and external regulation.

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ПСИХОДІАГНОСТИКА АКАДЕМІЧНОЇ САМОРЕГУЛЯЦІЇ УЧНІВ ОСНОВНОЇ ШКОЛИ

Стаття характеризує рівні та засоби психодіагностики академічної саморегуляції учнів основної школи. Внутрішня саморегуляція передбачає інтерес до навчальної діяльності, а зовнішня (ідентифікована, інтроектна та зовнішня) регуляція відображає роль зовнішніх чинників навчальної діяльності в мотивації школяра. Показана стандартизація методики «Академічної саморегуляції учнів основної школи», її валідність та надійність.

Ключові слова: академічна саморегуляція, навчальна діяльність, саморегуляція, ідентифіковане, інтроектне та зовнішнє регулювання.

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ПСИХОДИАГНОСТИКА АКАДЕМИЧЕСКОЙ САМОРЕГУЛЯЦИИ УЧЕНИКОВ СРЕДНЕЙ ШКОЛЫ

В статье описываются уровни и средства психодиагностики академической саморегуляции учащихся средних школ. Внутренняя саморегуляция предполагает интерес к учебной деятельности, а внешняя (идентифицированная, интроектированная и внешняя) регуляция отражает роль внешних факторов учебной деятельности в мотивации школьника. Представлены стандартизация методики «Академической саморегуляции учеников средних школ», ее валидность и надежность.

Ключевые слова: академическая саморегуляция, учебная деятельность, саморегуляция, идентифицированное, интроецированное и внешнее регулирование.

Introduction. The problem of psychodiagnostics of academic self-regulation for pupils of middle school (teenagers) seems particularly relevant in connection with the need to ensure the success of the educational functions.

According to the self-determination theory we consider three learning motives: competence motive requires succeeding at optimally challenging tasks and attaining desired outcomes, autonomy motive requires experiencing choice and feeling like the initiator of one's own actions; and relatedness motive requires a sense of mutual respect, caring, and reliance with others [6 – 9]. Self-determination theory considers different ways of activity regulation, the first of them is an intrinsic self-regulation or motivation, which assumes the interest and enjoyment during the activity, on the opposite side there is an extrinsic regulation, which requires the external values of activity [9]. This kind of motivation is defined as the doing of an activity for its inherent satisfactions rather than for some separable consequence. It refers to doing something because it is inherently interesting or enjoyable. Intrinsically motivated person is moved to act for the fun or challenge entailed rather than because of external prods, pressures, or rewards [8].

Other kind of self-determined motivation is an extrinsic regulation, which assumes the least autonomous behavior, which referred to as externally regulated. The external regulation is orientated to satisfy an external demand or obtain an externally imposed reward contingency. It is the type of motivation focused on by operant theorists [9].

A second type of extrinsic motivation is introjected regulation, which involves taking in a regulation of activity but not fully accepting it as one's own. Introjected regulation describes a type of internal regulation that is still quite controlling because people perform such actions with the feeling of pressure in order to avoid guilt or anxiety or to achieve ego-enhancements or pride [9].

The third form of activity regulation is regulation through identification, which is more autonomous, or self-determined. It reflects a conscious valuing of a behavioral goal or regulation, such that the action is accepted or owned as personally important. The person has identified with the personal importance of a behavior and has thus accepted its regulation as his or her own [9]. A pupil who memorizes information because he sees it as relevant to his learning activity, which he values as a life goal, has identified with the value of this activity.

The self-determination theory which considers four main forms of self-regulation can be applied to learning activity. We consider learning motives for each form of self-regulation: 1) striving for rewards and avoiding punishment from the teacher and parents (external regulation); 2) considering learning ac-

tivity as a source of self-esteem maintenance (introjected regulation); 3) considering learning activity as an important life value (identification); 4) considering learning activity as a source of enjoyment and interest (intrinsic motivation).

The **purpose** of the article is to determine the possibilities of diagnostics of academic self-regulation of pupils od middle school. According to the research aim, the following **tasks** were set:

1) to adopt a questionnaire of academic self-regulation and check its validity and reliability;

2) to determine the structure of the motivation of the learning activity, taking into account the role of the academic self-regulation in it.

Research methods. The study used the original questionnaire of academic self-regulation, standardization of which is described below.

The sample included 444 people (421 women and 182 men) among them - 84 students of the 5th form, 120 from the 6th form, 84 from the 7th form, 85 to 8th form, 70 students of the 9th form and 62 students of the 10th form of the gymnasium №169 of Kharkiv.

Discussion. According to the self-determination theory we adapted the Gordeeva's questionnaire aimed at academic self-regulation. The first task of the study involves the standardization of the questionnaire, in particular, its reliability, constructive, discriminatory and convergent validity, and test-retest reliability.

Reliability of the questionnaire. The academic self-regulation questionnaire for primary school students was developed by E. Deci R. Ryan [8]. In Ukraine the adaptation of this technique was carried out by M.V. Yatsyuk [3; 5], Russian-language adaptation was carried by T.O. Gordeyeva [1]. We created 32 questionnaires, which in content correspond to the structure of school activities for pupils, the following instruction was created: "Please indicate how each statement reflects your opinion on your own learning activities. Use the following answers: "Disagree", "Rather Disagree", "It is difficult to answer", "Rather agree", "Agree".

The first step in processing the raw data received was to check the internal consistency of the questionnaire. The Cronbach's alpha statistics were calculated for a scale that includes all 32 items. The value of the Cronbach's alpha for a scale of 32 items was 0,896, which is above the acceptable level of 0,7.

According to the results of the analysis of the indicators of Cronbach's alpha for the each item of the questionnaire it was established that items 2 and 28 impair the psychometric index of one-time reliability. Consequently, they were excluded from the final version of the questionnaire, which influenced the increase of the Cronbach's alpha to 0.900. The re-checking of alpha values for each item showed that paragraphs 6 and 31 reduce the reliability of the ques-

tionnaire containing 30 points. Removing these items has increased the reliability to the alpha value of 0.901 and all 28 items have high reliability.

Constructive validity of the questionnaire. The factor analysis was used to detect the internal structure of the questionnaire, excluding the items 2, 6, 28, 31. As a result of explorative factor analysis (with angular rotation) four factors that were not correlated with each other (0,013-0,015) were found.

Factor 1 (14,5% of dispersion) created by the items: the 10th "Because I want the teacher to consider me a good student" (0,784), the 26th "To make my teachers think of me as a good student" (0,777), the 24th "Because I want the teacher to praise me" (0,773), the 1st "Because I want the teacher to think about me" (0,746), the 17th "Because I want my classmates to consider me reasonable" (0,680), the 9th "To not upset their teacher" (0,661) The content of this factor formed the items that are included in the scale of the introjected regulation.

Factor 2 (13% of dispersion) includes items: the 7th «Because I like to do the lessons» (0,866), the 3d «Because it is interesting, I like to study» (0,780), the 11th «Because I want to learn new material» the 13th «Because it is interesting» (0,704), the 15th «Because I like to work in class» (0,638), the 22d «It is interesting to answer difficult questions», the 27th "Because I like to learn new" (0,544). The psychological content of the factor points is that it reflects the internal or intrinsic self-regulation of learning activities.

Factor 3 (10,2% of dispersion) presented by the following items: the 12th "Because I will be ashamed for myself if I do not do them" (0,786), the 29th "Because it will be shameful to me if I am ill to study" (0,745), the 18th "Because I am ashamed when I do not work diligently" (0,718), the 4th "Because I will think badly about myself, if I do not do them" (0,697). The content of the factor lies in the introjected regulation.

Factor 4 (9,6% of dispersion) combined the following items: the 30th "Because it is important for me to study very well" (0,712), the 16th "Because it is important for me to work on tasks in class" (0,672), the 5th "Because I want to understand this subject" (0,671), the 8th "Because for me it is important to do my homework" (0,510). The factor reflects the identification in learning activity.

Factor 5 (8,4% of dispersion) combined the following items: the 19th "Because I like to answer difficult questions" (0,832), the 23d "Because it is important for me to try to answer difficult questions in the classroom" (0,575), the 21st "In order to check whether I am right or wrong" (0,477). Like the previous one, this factor also reflects the identified regulation in terms of content.

Factor 6 (7,4% of dispersion) combined the following items: the 20th "Because this is what I should (should) do" (0,753), the 14th "Because it is my duty in the class" (0,731), the 25th "Because this is what you need to do" (0,638), the

32d "Because parents will be satisfied if I am good at studying" (0,401). The factor reflects the external or extrinsic regulation of educational activities.

Thus, the final version of the questionnaire «Academic Self-regulation Questionnaire» represented by scales – intrinsic motivation, identification, introjected regulation, external regulation of learning activity. The developed technique meets the modern requirements for psychometric substantiation of personal questionnaires.

Test-retest reliability of the questionnaire. Repeated testing of the same sample (120 people) was conducted at intervals of two weeks. The correlation between the results of the first and second tests was at the level of $r = 0,791$, which indicates a sufficiently high test-retest reliability of the questionnaire.

Normative scale. In table 1 the descriptive statistics of «Self-regulation of labor activity Questionnaire» are set.

Table 1

Descriptive statistics of «Academic Self-regulation Questionnaire»

Indicators	Mean	Min	Max	Std. dev
Intrinsic motivation	12,86	7	28	4,10
Identification	11,98	7	28	3,55
Introjected regulation	24,09	10	40	7,32
Extrinsic regulation	8,77	4	15	2,48

Dividing into three intervals the marginal values of the norm for the indicators of the Intrinsic motivation and Identification scales are 9-16 points, for the Introjected regulation – 17-32 points and for the External regulation - 6-12 points.

Convergent and discriminant validity of «Academic self-regulation Questionnaire» checked out by identifying the correlation between the indicators of academic self-regulation and the indicators of the hubristic motivation (K.I. Fomenko [4]) (convergent validity), and motivation of the learning activity [2] (discriminant validity).

There is a positive correlation between academic self-regulation and a *hubristic motivation*: between the indicators of aspiration to perfection and internal motivation ($r=0,38$, $p < 0,0001$) and identification ($r = 0,32$, $p < 0,0001$), between aspiration to superiority and internal motivation ($r = 0,23$, $p < 0,0001$) and identification ($r=0,16$, $p < 0,0001$).

Introjected regulation is related to the aspiration to superiority ($r=0,16$, $p < 0,001$), and there is a positive correlation between external regulation and aspiration to superiority ($r=0,24$, $p < 0,0001$). Consequently, the autonomous

self-regulation of learning activity, due to the internal motives and identification, is associated with the aspiration to perfection and improvement of skills, as well as the desire to be better than others. External regulation of learning activity involves an employee's desire to be better than others.

There is no statistically significant relationship between extrinsic regulation and the *motivational structure of learning activity*, except for the cognitive motive ($r=-0,35$, $p<0,0001$), which suggests that the desire for punishment avoidance is related to the desire to know something new and interest during learning activity. External regulation also has negative correlation with external motives of learning activity ($r=0,33$, $p<0,0001$). Intrinsic regulation is positively related to the cognitive motive ($r = 0,54$, $p<0,0001$) and the achievement motive ($r =0,38$, $p<0,0001$), thus the focus on learning achievements and interest in study envisages the internal self-regulation.

There are no statistically significant relationship between academic self-regulation and such learning motives as communicative motive, positional motive, self-development motive and emotional motive.

Conclusions. According to self-determination theory we consider four ways of academic activity regulation: an intrinsic self-regulation or motivation, which assumes the interest and enjoyment during the activity, and an extrinsic regulation (identification, introjected and external regulation), which requires the external values of learning activity. The results of the Academic Self-regulation Questionnaire standardization has shown. Its validity and reliability were proved.

The prospect of further research is the study of the motivation structure of learning activity in various pupils' age.

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APPENDIX

Academic Self-regulation Questionnaire (final version) Опитувальник академічної саморегуляції (кінцева версія)

Інструкція: оцініть, будь ласка, у балах кожне твердження: 1 – не важливе, 2 – не дуже важливе, 3 – трудно відповісти, 4 – досить важливе, 5 – дуже важливе.

Чому я роблю домашні завдання?		Балл
1	Тому що я хочу, щоб учитель гарно про мене думав.	
2	Тому що це цікаво, мені подобається навчатися.	
3	Тому що я буду погано думати про себе, якщо не зроблю їх.	
4	Тому що я хочу зрозуміти цей предмет.	
5	Тому що мені подобається робити уроки.	
6	Тому що для мене важливо виконувати мої домашні завдання.	
Чому я працюю над завданнями в класі?		
7	Щоб не засмучувати свого вчителя.	
8	Тому що я хочу, щоб учитель уважав мене гарним учнем.	
9	Тому що я хочу вивчити новий матеріал.	
10	Тому що мені буде соромно за себе, якщо я їх не виконаю.	
11	Тому що це цікаво.	
12	Тому що це мій обов'язок на уроці.	
13	Тому що мені подобається працювати в класі.	
14	Тому що мені важливо працювати над завданнями в класі.	
Чому я намагаюся відповісти на важкі запитання в класі?		
15	Тому що я хочу щоб мої однокласники вважали мене розумним.	
16	Тому що мені соромно коли я нестаранно працюю.	
17	Тому що мені подобається відповідати на важкі запитання.	
18	Тому що це те, що я повинен (повинна) робити.	
19	Для того щоб перевірити, прав(а) я чи помиляюсь.	
20	Тому що цікаво відповідати на важкі запитання.	

21	Тому що для мене важливо намагатися відповідати на важкі запитання в класі.	
22	Тому що я хочу, щоб учитель хвалив мене.	
Чому я намагаюся добре вчитися в школі?		
23	Тому що це те, що потрібно робити.	
24	Для того, щоб мої вчителі думали про мене, як про гарного учня.	
25	Тому що мені подобається дізнаватися нове.	
26	Тому що мені буде соромно, якщо я буду погано навчатися.	
27	Тому що для мене важливо гарно навчатися.	
28	Тому що батьки будуть задоволені, якщо я буду гарно навчатися.	

Ключ:

Власне спонукання: сума балів за пунктами: 2, 5, 9, 11, 13, 20, 25.

Ідентифіковане регулювання: сума балів за пунктами: 4, 6, 14, 17, 19, 21, 27.

Інтроєктоване регулювання: сума балів за пунктами: 1, 3, 7, 8, 10, 15, 16, 22, 24, 26.

Зовнішнє регулювання: сума балів за пунктами: 12, 18, 23, 28.

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