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STUDY OF STUDENT'S ACADEMIC MOTIVATION SCALE

Abstract. The process of developing interest in learning is especially difficult for students experiencing academic failure. These failures represent a psychological barrier to the formation of interest, activity and independence. The main explanation for the success of educational institutions is the motivation of students to learn. If students are demotivated, it is very difficult for educational institutions to achieve significant success. Promoting student achievement requires the implementation of procedures and processes to closely monitor student learning activities. While important, due to the lack of good practice and sufficient technical support to support this practice, the activities associated with this dynamic process are not being carried out in many educational institutions. The implication of this study is that it is important for school administrators to know the level of motivation of their students in order to take measures to prevent the decline in student performance. Teachers may need to be involved in developing teaching methods to meet the changing expectations of today's learners. In this research work studied motivation measure method. The Academic Motivation Scale (AMS) method was used to measure student motivation. It was attended by 318 students registered in the LMS system Eduway.kz. Of these, 263 are girls and 55 are boys. Cronbach's Alpha was used to assess the internal consistency of the motivation scales. The alpha values ranged from 0.74 to 0.83.

Keywords: education, self-determination theory, academic motivation.

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Аннотация. Процесс развития интереса к учебе особенно труден для учащихся, испытывающих неуспеваемость. Неуспеваемость представляют собой психологический барьер для формирования интереса, активности и независимости. Основное объяснение успеха образовательных учреждений – это мотивация студентов к учебе. Если студенты демотивированы, учебным заведениям очень сложно добиться значительных успехов. Содействие достижению учащихся требует внедрения процедур и процессов для тщательного мониторинга учебной деятельности учащихся. Хотя это важно, из-за отсутствия передовой практики и достаточной технической поддержки для поддержки этой практики мероприятия, связанные с этим динамичным процессом, не выполняются во многих учебных заведениях. Смысл этого исследования заключается в том, что школьной администрации важно знать уровень

мотивации своих учеников, чтобы принять меры по предотвращению снижения успеваемости учеников. Учителей, возможно, потребуется привлечь к разработке методов обучения, чтобы удовлетворить меняющиеся ожидания сегодняшних учащихся. В данной исследовательской работе изучается метод измерения мотивации. Для измерения мотивации студентов использовалась шкала академической мотивации (AMS). В нем приняли участие 318 студентов, зарегистрированных в системе LMS Eduway.kz. Из них 263 девочки и 55 мальчиков. Альфа Кронбаха использовалась для оценки внутренней согласованности шкал мотивации. Значения альфа варьировались от 0,74 до 0,83.

Ключевые слова: образование, теория самоопределения, академическая мотивация.

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Андатпа. Оқуға деген қызығушылықты дамыту процесі, әсіресе, үлгерімі нашар оқушылар үшін өте қиын екені мәлім. Оқудағы сәтсіздіктер қызығушылықты, белсенділікті және тәуелсіздікті қалыптастырудың психологиялық кедергісін қалыптастырады. Оқу орындарының жетістігінің негізгі себебі - оқушылардың оқуға деген ынтасы. Егер оқушылар демотивацияланған болса, онда білім беру мекемелеріне айтарлықтай жетістікке жету өте қиын. Оқушылардың жетістіктерін алға жылжыту олардың оқу әрекеттерін мұқият бақылауға арналған процедуралар мен процестерді жүзеге асыруды талап етеді. Маңызды болғанымен, жақсы тәжірибе мен бұл тәжірибені қолдау үшін жеткілікті техникалық қолдаудың болмауына байланысты, бұл динамикалық процеске байланысты іс-шаралар көптеген білім беру ұйымдарында жүргізілмейді. Бұл зерттеудің мәні мектеп әкімшілігі үшін оқушылардың үлгерімінің төмендеуіне жол бермейтін шаралар қабылдау үшін оқушыларының мотивация деңгейін білу маңызды болып табылады. Мұғалімдерге қазіргі оқушылардың өзгеріп отыратын талаптарын қанағаттандыру үшін оқыту әдістерін жасауға қатысу қажет болуы мүмкін. Осы зерттеу жұмысында мотивацияны өлшеу әдісі зерттелді. Оқушылардың ынтасын өлшеу үшін академиялық мотивация шкаласы әдісі (AMS) қолданылды. Оған Eduway.kz LMS жүйесінде тіркелген 318 студент қатысты. Оның 263-і қыз, 55-і ер бала. Cronbach's Alpha мотивация шкалаларының ішкі консистенциясын бағалау үшін пайдаланылды. Альфа мәндері 0,74-тен 0,83-ке дейін болды.

Түйін сөздер: білім беру, өзін-өзі анықтау теориясы, академиялық мотивация.

Introduction

Nowadays, as technology advances, especially in education, it is easy to collect large amounts of electronic data. During the quarantine due to Covid19, remote learning technologies developed very progressively. Schoolchildren began to learn from home online. Some data on student behavior began to be stored in the logs of LMS systems. Now it is important to study this data and translate the raw data into useful data and identify problems ahead of time. The aim of our research is to determine the level of student motivation using the data accumulated during the studies. To solve the problem, a data set is needed and it was decided to use student data from the LMS platform Eduway.kz. More than 8,000 high school students are registered on the platform. Of these, about 1050 village high school students study under the program of the iQanat foundation (led by BI-GROUP company). We chose the students of the iQanat program for the study. The LMS stores data on how actively a student is watching video lessons, midterm exam results, homework results and lesson attendance. The problem of research is how to pre-measure the level of motivation for further development of the research. Based on a review of several literatures, the method of the Academic Motivation Scale questionnaire developed by Vallerand et al. [1].

Methodology

To assess academic motivation was used AMS (Academic Motivation Scale) developed by Vallerand et al. [1]. In this questionnaire, participants are required to express their agreement with the statement of 28 items on a 7-point scale. Each item contains an answer in the form of a statement to the question "Why do you go to school?" (Table 1.). With the help of this questionnaire, three levels of motivation are determined (internal, external, amotivation). Internal and external motivation separately consists of 3 subscales (internal motivation to know, internal motivation to achieve, internal motivation to experience stimulation, external motivation - identified, external motivation - introjected, external motivation - external regulation). And including amotivation there are 7 subscales in total.

Table 1. Items of the AMS questionnaire. Adapted from AMS - College version. *Robert J. Vallerand, Luc G. Pelletier, Marc R. Blais, Nathalie M. Brière, Caroline B. Senécal, Évelyne F. Vallières, 1992-1993*

№	*WHY DO YOU GO TO SCHOOL ?*	*Motivation scale*
1	Because I need at least a high-school degree in order to find a high-paying job later on.	Extrinsic motivation - external regulation

2	Because I experience pleasure and satisfaction while learning new things.	Intrinsic motivation - to know
3	Because I think that a high-school education will help me better prepare for the career I have chosen.	Extrinsic motivation - identified
4	Because I really like going to school.	Intrinsic motivation - to experience stimulation
5	Honestly, I don't know; I really feel that I am wasting my time in school.	Amotivation
6	For the pleasure I experience while surpassing myself in my studies.	Intrinsic motivation - toward accomplishment
7	To prove to myself that I am capable of completing my high-school degree.	Extrinsic motivation - introjected
8	In order to obtain a more prestigious job later on.	Extrinsic motivation - external regulation
9	For the pleasure I experience when I discover new things never seen before.	Intrinsic motivation - to know
10	Because eventually it will enable me to enter the job market in a field that I like.	Extrinsic motivation - identified
11	Because for me, school is fun.	Intrinsic motivation - to experience stimulation
12	I once had good reasons for going to school; however, now I wonder whether I should continue.	Amotivation
13	For the pleasure that I experience while I am surpassing myself in one of my personal accomplishments.	Intrinsic motivation - toward accomplishment
14	Because of the fact that when I succeed in school I feel important.	Extrinsic motivation - introjected

15	Because I want to have "the good life" later on.	Extrinsic motivation - external regulation
16	For the pleasure that I experience in broadening my knowledge about subjects which appeal to me.	Intrinsic motivation - to know
17	Because this will help me make a better choice regarding my career orientation.	Extrinsic motivation - identified
18	For the pleasure that I experience when I am taken by discussions with interesting teachers.	Intrinsic motivation - to experience stimulation
19	I can't see why I go to school and frankly, I couldn't care less.	Amotivation
20	For the satisfaction I feel when I am in the process of accomplishing difficult academic activities.	Intrinsic motivation - toward accomplishment
21	To show myself that I am an intelligent person.	Extrinsic motivation - introjected
22	In order to have a better salary later on.	Extrinsic motivation - external regulation
23	Because my studies allow me to continue to learn about many things that interest me.	Intrinsic motivation - to know
24	Because I believe that my high school education will improve my competence as a worker.	Extrinsic motivation - identified
25	For the "high" feeling that I experience while reading about various interesting subjects.	Intrinsic motivation - to experience stimulation
26	I don't know; I can't understand what I am doing in school.	Amotivation
27	Because high school allows me to experience a personal satisfaction in my quest for excellence in my studies.	Intrinsic motivation - toward accomplishment

28	Because I want to show myself that I can succeed in my studies.	Extrinsic motivation - introjected

To conduct a questionnaire for students of Kazakhstan, all items of questionnaire were translated into Kazakh and Russian.

Results

The AMS questionnaire was launched online in the Eduway.kz platform. Exactly 318 students from different regions have completed the questionnaire. Of these, 263 are girls and 55 are boys. The results (Table 2) show that the lowest score is shown by the scale of amotivation (2.8) and the highest score is in "intrinsic motivation to know" (5.5). The results of boys and girls are almost the same on all subscales. All subscales correlated and statistical significant. And analysis shows that all subscales are reliable. Cronbach's Alpha was used to assess the internal consistency of the subscales. The alpha values ranged from 0.74 to 0.83 (Table 4), and they are close to the alpha values in the research work of Valerand et al. (1992).

Table 2. Means and Standart Deviations for Males and Females

	gender	N	Mean	Std. Deviation	Std. Error Mean
Intrinsic motivation - to know	male	55	5,5591	1,38775	,18712
	female	263	5,5551	1,34249	,08278
Intrinsic motivation - toward accomplishment	male	55	5,0500	1,64105	,22128
	female	263	4,7319	1,54386	,09520
Intrinsic motivation - to experience stimulation	male	55	5,1682	1,47828	,19933
	female	263	4,7776	1,43030	,08820
Extrinsic motivation - identified	male	55	5,3364	1,59006	,21440
	female	263	5,2148	1,46001	,09003
Extrinsic motivation - introjected	male	55	4,5136	1,74232	,23493
	female	263	4,4753	1,62499	,10020

Extrinsic motivation - external regulation	male	55	5,5818	1,36597	,18419
	female	263	5,3099	1,47740	,09110
Amotivation	male	55	3,0818	1,83210	,24704
	female	263	2,6473	1,65973	,10234

Table 3. Correlations of Subscales

Pearson Correlations							
	IM - to know	*IM - toward accomplishment*	*IM - to experience stimulation*	*EM - identified*	*EM - introjected*	*EM - external regulation*	*Amotivation*
IM - to know	1	,634**	,671**	,715**	,573**	,493**	-,255**
IM - toward accomplishment	,634**	1	,610**	,549**	,724**	,451**	-,027
IM - to experience stimulation	,671**	,610**	1	,608**	,592**	,406**	-,171**
EM - identified	,715**	,549**	,608**	1	,601**	,681**	-,291**
EM - introjected	,573**	,724**	,592**	,601**	1	,581**	-,011
EM - external regulation	,493**	,451**	,406**	,681**	,581**	1	-,136*
Amotivation	-,255**	-,027	-,171**	-,291**	-,011	-,136*	1
**. Correlation is significant at the 0.01 level (2-tailed).							
*. Correlation is significant at the 0.05 level (2-tailed).							

Table 4. Internal Consistency Values (Cronbach's Alpha)

	Cronbach's Alpha	Mean	SD	N of Items
IM - to know	,79	22,2	5,39	4
IM - toward accomplishment	,82	19,15	6,25	4
IM - to experience stimulation	,74	19,38	5,78	4
EM - identified	,80	20,94	5,93	4
EM - introjected	,79	17,93	6,57	4
EM - external regulation	,77	21,43	5,84	4
Amotivation	,83	10,89	6,78	4

Conclusion

In this paper studied and analyzed the AMS motivation measurement method for students in Kazakhstan. The tests gave good results. Despite the fact that the questionnaire was translated into another language, it showed that it is applicable to measure the Academic Motivation Scale and can be used for further research. Since there are several types of motivation in AMS, it is difficult to determine which scale to use for Machine Learning models in research. But there are other methods for determining the level of motivation. For example, using AMS, you can calculate the Self-Determination index (SDI) [3]. Desi and Ryan (2002) developed a framework that analyzes intrinsic and extrinsic motivation not categorically, but instead places them on a continuum from controlled to autonomous regulation (see Figure 1).
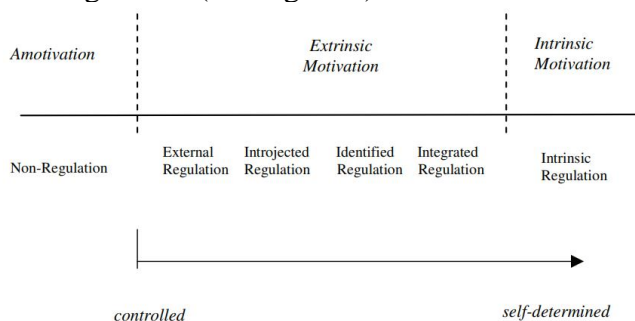

Figure 1. The continuum of self-determination (Deci & Ryan, 2002, p. 16)

In our research papers in the future, we need to study the self-determination index and use it to train machine learning models. In this study, we did not fully achieve the goal, but we are significantly closer to it.

References

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