Adaptive cognitive dimension and maladaptive behavioral dimension as motivating factors in school achievement

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Summary

This research examines a multi-dimensional model of student motivation and engagement. Through this model, the levels of development of factors that reflect increased motivation (adaptive dimensions) and those that reflect reduced motivation (maladaptive dimensions) among students are understood.

The research was completed using the survey method, with student self-reporting answers in questionnaires on studied variables in their grades in schools. Research age group for this study was 200 students of Grades 10, 11 and 12 from public upper secondary school "Sami Frashëri" and students of private upper secondary school "Luarasi" in Prishtina. Selection of this sample utilized convenience method. Data were analyzed using SPSS 18.0 statistical package for social sciences.

The study found that adaptive cognitive dimension has positive effects on student school achievement and that maladaptive behavioral dimension has negative effects. The research also found that these two factors are significant in student achievement for this age group.

The research may serve as a good orientation base for explaining the complex nature of relations of various factors with school achievement.

The purpose of this research is to understand that both motivational factors (protecting factors) and demotivating factors (risk factors) are important for student school achievement. Another purpose is to understand levels of development of factors that reflect increased motivation and those that reflect reduced motivation.

Key words: Motivation, Engagement, Pupil, School achievement, Self-esteem, School assessment, Planning, Learning management, Perseverance, Self-sabotage, Disengagement.

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Introduction

Motivation may be conceptualized as an energy and push to learn and work effectively, and to achieve required potential at school, while engagement is the behavior that follows from that energy and push. Motivation is referred to as multi-dimensional: it measures impulsive and deliberate action; it has to do with intrinsic and extrinsic factors and observes causes of behavior.

Motivation is one of the key psychological concepts in education. Many researchers have found that motivation is linked to various educational outcomes, such as curiosity, persistence, learning and performance.[1] Therefore, the question why some students are motivated to achieve results in education, while other students are unmotivated is an important one. Thus, it is required that educators and parents determine factors that result in achievement of high motivation in order that they are better equipped to facilitate academic success of students and to avoid factors that lead to low motivation.

While there are a number of factors that affect school performance, one of the most influential is motivation. Motivation is also referred to as academic engagement, and as "Cognitive, emotional and behavioral indicator in students' investment in and commitment to education".[2] It is clear that students who are not motivated to be successful will not work hard. Actually, some scholars have suggested that motivation alone affects academic achievement, and all other factors affect achievement only through their effects on motivation.[3]

A lot of research argues that students who have intrinsic motivation drive use cognitive strategies and self-regulatory processes

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[1] Carolyn M. Trucker, et. al., "Teacher and child variables as predictors of academic engagement among low-income African American children". Psychology in the Schools, 2002 pp. 477-488.

[2] Ibid., pp. 466

[3] Eric M. Anderman et al., "Changes in achievement goal orientations, perceived academic competence and grades across the transition to middle level schools". Contemporary Educational Psychology, 1997, pp. 269-298.

more than students who rely on extrinsic motivation drives.[4] We have also seen a deeper learning approach, which is related to a higher degree of involvement and intrinsic interest in learning in cases where results continuously derive as a consequence of intrinsic factors (ability and effort), while assuming that results are an outcome of extrinsic factors (such as positive effects towards superficial learning acquisition).[5]

The latest theoretical contribution to our understanding of motivation and engagement pertains to motivation drives. Motivation drive refers to student focus on the task at hand (focus on learning), or how one completes the task (focus on performance). In this discussion, the focus of students on learning is particularly important. Focus on learning refers to students' tendency to feel successful and to obtain satisfaction in what they are determined to complete. [6]

Students who are focused on learning are motivated to master skills rather than become better than others. They see tasks more as a skill and failure is considered a diagnostic remark that can lead to later improvement.[7] Due to this effort and drive, students focused on learning do not feel threatened by failure because failure reflects more their effort rather than their ability. As a result, they respond to obstacles and pressure with more efforts and proactive strategies rather than self-punishment, such as self-handicapping or withdrawal and disengagement.[8]

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[4] Edward L. Deci & Richard M. Ryan, *Intrinsic motivation and self-determination in human behavior*. New York: Plenum, 1985, pp. 87.

[5] Carol S. Dweck, *Motivational processes affecting learning*. American Psychologist, 1986, pp. 1040-1048

[6] Michael J. Middleton & Louis C. Midgley, *Avoiding the demonstration of lack of ability: An unexplored aspect of goal theory*. Journal of Educational Psychology, 1997, pp. 710-718.

[7] John. A. Martin et. al., *Self-handicapping, defensive pessimism, and goal orientation: A qualitative study of university students*. Journal of Educational Psychology, 2003, pp. 617-628.

Focus on learning is positively related to the practice of mastery strategies and negatively related to avoidance strategies. It is important that students focused on learning are flexible with regards to obstacles, because they see weak performance or failure as a reflection of their efforts and strategies and thus respond to it with more efforts and better strategies. Therefore, the focus on learning seems to be a critical element in student motivation.

Mastery-oriented students are optimistic and have a stronger sense of self-efficacy.[9] This brings into consideration the issue of self-efficacy. Students who are highly self-efficacious tend to create and test alternative courses of action, when they are not successful at the beginning they operate better in the classroom through higher levels of effort and persistence and deal more efficiently with problematic situations, affecting those situations cognitively and emotionally.[10]

Students with low self-efficacy tend to focus on their weaknesses and perceive situations as more difficult than they actually are.[11] We can say with some confidence that self-efficacy is important for student motivation. Students who have a strong sense of self-efficacy are energetic to complete tasks (i.e. they are motivated and engaged). Evidence supports this claim: self-efficacy and self-confidence have been related to outcomes such as self-regulation, efforts, persistence and achievement.[12] Self-efficacy is, therefore, important for motivation and engagement building model that is being developed here.

Another way of conceptualizing self-efficacy is the expectation aspect: students who feel that they are able to master school tasks also

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[8] John. A. Martin, *The Student Motivation Scale:* A tool for measuring and enhancing motivation. *Australian Journal of Guidance and Counseling,* 2001, pp.1-20

[9] Albert Bandura, *Self-Efficacy: The exercise of control.* New York: Freeman dhe Co, 1997.

[10] Ibid.

[11] Paul Pintrich et. al., "Motivation in education: Theory, research and applications". Englewood Cliffs: Prentice Hall. 1996.

[12] Jacquelynne S. Eccles et. al., *Motivation to succeed*, New York, 1998 pp. 1018-1095.

have positive expectations for success. The largest portion of students' self-efficacy related to academic outcomes pertains to their motivation and achievement. What further contributes to students' motivation and their engagement is their valuing of a task. Furthermore, interaction of expectation and valuing of a certain task predict their motivation and engagement, and by valuing them, students are more motivated and engaged to complete tasks. This interaction has been conceptualized in the appreciation and expectation theory.[13]

Another important component of motivation and engagement is valuing of the school and valuing of the task within it. When students see relevance of what they are learning, they are prone to be more engaged in those courses and achieve a higher level of achievement. Valuing of the school is also important for educational flexibility in the sense that it is related to persistence to challenges[14] and this persistence is what differentiates those students who abandon tasks early from those who are able to overcome more difficult academic challenges. Valuing of the school may strengthen students for difficult times in order to predict objectives and continue studies in the future.[15] Our model of motivation for this reason may expand by including valuing of school and persistence.

Students who avoid failure tend to be concerned and motivated by fear of failure, live with doubts on themselves and are uncertain about their ability to avoid failure or succeed.[16] While these students may often work harder and succeed, obstacles may also negatively affect them since this confirms their doubts related to their uncertain abilities and control.

Essentially, they lack educational flexibility. Often, as a response to fear of failure, students avoid failure and may actively handicap or

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[13] John. A. Martin, *The Student Motivation Scale:* A tool for measuring and enhancing motivacion. *Australian Journal of Guidance and Counseling,* 2001, pp.45-55

[14] Ibid.

[15] Martin V. Covington & Carol Omelich, *Effort: The double-edged sword in school achievement. Journal of Educational Psychology,* 1979, pp.169-182.

[16] Ibid., pp. 169-182.

impede their chances for success (e.g. postpone learning, avoid learning until the last minute, or don't learn at all) so that they have a justification for why they are not as successful. This justification serves them as a protection mechanism since they may blame their poor work more than their potential lack of their abilities.[17]

Students who accept failure, often referred to as helpless learners, have surrendered even without making any effort to avoid failure. These students are not generally engaged in their studies and express a helplessness model of motivation.[18] In many cases, students who accept failure actively sabotage their chances for success by not making any effort. These students lack motivation.

However, it is not very easy to understand what motivates students. Many studies have been conducted on this field leading to development of several motivation theories.

Methodology

The research was completed using the survey method, with student self-reporting answers in questionnaires on studied variables in their school grades. The researched age group for the study was 200 students of Grades 10, 11 and 12 from public upper secondary school "Sami Frashëri" and students of private upper secondary school "Luarasi" in Prishtina.

Sampling

A group of 200 students from two upper secondary schools in Prishtina participated in the study. Sample selection utilized convenience method. Students' age group was between 16-18 years old. Overall, there were 118 female and 69 male students in the study.

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[17] Lyn Y. Abramson et. al., *Learned helplessness in humans: Critique and reformulation. Journal of Abnormal Psychology,* 1978, pp. 49-74.

[18] Louis C. Midgley et. al., *Predictors of adolescent's use of academic self-handicapping strategies. Journal of Educational Psychology,* 1996, pp. 423-434.

Measurement instruments

Motivation and Engagement Scale (MES) for upper secondary school students was used to collection data for the study. Australian psychologist Dr. Andrew Martin developed this scale in 2001.

MES – (upper secondary school), is an instrument that measures student motivation and engagement in upper secondary schools (12-18 year olds). It assesses motivation through three adaptive cognitive dimensions (reinforcing thoughts), three adaptive behavioral dimensions (reinforcing behavior), three impeding cognitive dimensions, and two maladaptive behavioral dimensions of disengagement and self-handicapping. Each of these factors consists of four items – thus, it is an instrument that included 44 items. For each item, students decide on one of the elements of the scale, starting from "fully agree" to "strongly disagree".

MES obtains demographic data from participants such as name, gender, age, and grade point average. The scale consists of 44 items, 4 items for each of 11 factors of Motivation and Engagement Mechanism. The study only includes the factors pertaining to adaptive cognitive dimension and maladaptive behavioral dimension.

Research hypotheses (sub-hypotheses) include:

H1: Adaptive cognitive dimension and maladaptive behavioral dimension are important for overall school achievement.

H1.1: Adaptive cognitive dimensions (self-efficacy, mastery orientation and valuing) are positively related to school achievement. When adaptive cognitive dimensions go up, school achievement increases.

H1.2: Maladaptive behavioral dimensions (self-handicapping and disengagement) are negatively related to school achievement. When maladaptive behavioral dimensions go up, school achievement decreases.

Adaptive cognitive dimensions

Adaptive cognitive dimensions include self-efficacy, mastery orientation and valuing of school.

Self-efficacy. Adapted in part from[19] Patterns of Adaptive Learning Survey, self-efficacy is students' confidence and certainty in their abilities to understand or do their best at school, to meet challenges they face and perform their best abilities. E.g. "If I work hard, I will succeed in school tasks".

Valuing of school. Adapted in part from[20] Learning Motivation Strategies Questionnaire, valuing of school pertains to how much students believe that what they learn in school is useful and relevant to them or to the world in general. E.g. "Learning in school is important for me".

Mastery orientation. Adapted in part from[21] mastery orientation on focused learning, problem solving and skill development. E.g. "I feel very satisfied with myself, when I really understand what I am learning at school ".

Maladaptive behavioral dimensions
These dimensions include self-handicapping and disengagement.

Self-handicapping. Adapted from Academic Self-Handicapping Scale[22] and the Shortened Self-handicapping Scale[1], students' self-handicapping comes from doing things that reduce their chances to

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[19] Paul Pintrich, *Multiple goals, multiple pathways: The role of goal orientation in learning and achievement.* Journal of Educational Psychology, 2000, pp. 544–555.

[20] Richard S. Newman, "Goals and self-regulated learning: What motivates children to seek academic help", 1991, pp. 151–183.

[21] Louis C. Midgley, et.al, *Predictors of adolescent's use of academic self-handicapping strategies. Journal of Educational Psychology,* 1996, pp. 423-434.

[22] Michael J. Strube, "An analysis of the Self-Handicapping Scale". Basic and Applied Social Psychology, 1986, pp. 211-224.

succeed at school. Examples have shown that during their time on task they waste time thinking about school homework or studying for an exam. E.g. "Sometimes I am not very much engaged in tasks, so I have a justification if I don't succeed".

Disengagement. Students are disengaged or at risk of disengagement when they feel obsessed with specific school courses or disengaged for school in general. Very disengaged students have a tendency to accept failure and behave in ways that reflect helplessness. E.g. "I really don't care for school anymore ".

Data analysis methods

In order to complete the study, data analysis methods included descriptive statistics (measures of central tendency, distribution and correlations), as well as scientific methods of results condensation and transformation.

SPSS 17.0 statistical software was used for data processing. Descriptive level of analysis of variables included in the study was completed with following methods:

Descriptive statistics parameters include:

Arithmetic average, (calculation of central tendency of results)

Standard deviation (how much results are spread out from their means)

Minimum and maximum range (the range between two extreme values)

Skewness, (normality of distribution of results)

Kurtosis (level of homogeneity of the group) and

Correlations and cross-correlations (the level of correlation between variables)

Chi-square.

Results and discussion
Interpretation of basic statistical parameters

The table of basic statistical parameters shows values of arithmetic average and we may conclude that in the majority of variables, which hypothetically cover adaptive cognitive dimensions, we find the majority of responses at the level of 'agree' or 'fully agree'.

Values of skewness, which in the majority of cases for these variables are higher than 1, show some departure from normal distribution. Such a phenomenon of distribution of results is seen in the results of other authors, and they are normal when we deal with distribution of results in variables based on the Likert scale, which are of ordinal type. In our case, the majority of variables have a negative non-normal distribution, which means that the majority of results are lower than their arithmetic average.

Maladaptive behavioral dimensions that represent handicapping have normal distribution while those representing disengagement have positive non-normal distribution.

In the variable of achievement we see that grade point average of all students included in the study is 3.76 and the scores are in the range of normal distribution.

Table 1. Values of basic statistical parameters for variables in the study

Statistika përshkruese							
	N	Min	Max	Mean	Standard deviation	Skewness	Kurtosis
Self-efficacy	185	1,00	7,00	6,15	0,871	-1,74	6,52
Valuing of school	185	3,00	7,00	6,33	0,69	-1,24	3,11
Mastery orientation	185	4,00	7,00	6,31	0,62	-0,62	0,77
Handicapping	185	1,00	7,00	3,75	1,86	0,10	-1,20
Disengagement	185	1,00	6,00	2,11	1,33	1,32	1,04
Achievement	185	1,00	5,00	3,76	1,19	-0,83	-0,053
Valid N	185						

The effect of adaptive cognitive dimensions on student achievement
Correlations between self-efficacy and final achievement

Based on Table no. 10, which represents the values for self-efficacy levels according to respective groups of achievement, we may conclude as follows:

The analyses show that there is a significant correlation between the self-efficacy level and student final achievement [ch(185,2)=87.05, p= 0.000].

From the other number of students 13.5% are low achievers, 53.5% are average achievers, while 33 % are excellent achievers. Regarding self-efficacy, 11.9% showed low values for self-efficacy, and 88.1% showed high level of self-efficacy. 98.4 % of excellent students showed high levels of self-efficacy, and only 1.6% of them have low level of self-efficacy. Among students of average achievement, the values are similar to excellent students and only 4% of the group showed low level of self-efficacy. Regarding students who are low achievers 68% of them showed low level of self –efficacy, while only 32% of the group showed high level of self-efficacy.

From this overview of results, we may conclude that the majority of students who have a high level of self-efficacy have average or excellent achievement, while students with lower levels of self-efficacy also are low achievers. These correlations of variables indicate that self-efficacy plays an important role in student school achievement, showing that increase in self-efficacy positively affects student achievement.

Table. 10. Correlations of self-efficacy with final achievement

Variabl		Achi			
		Low	Avera	Excellenet	Tot
Low	Cou	1	4	1	2
	Expected	3,	11,	7,	22,
	% within	77,3	18,2	4,5	100,0
	% within	68,0	4,0	1,6	11,9
	Resid	14,	-7,	-6,	
	Std.	8,	-2,	-2,	
High	Cou	8	9	6	16
	Expected	22,	87,	53,	163,
	% within	4,9	58,3	36,8	100,0
	% within	32,0	96,0	98,4	88,1
	Resid	-14,	7,	6,	
	Std.	-3,	,	,	
	Cou	2	9	6	18
	Expected	25,	99,	61,	185,
	% within	13,5	53,5	33,0	100,0
	% within	100,0	100,0	100,0	100,0

C -Square

	Val	d	Asymp.
Pearson -Squa	87,0 [a]	2	,00
Likelihood	59,9	2	,00
Line -b -Line	49,4	1	,00
N of Valid	18		

Associat

Symmetric

		Val	Approx.
Nominal by	P	,68	,00
	Cramer'	,68	,00
N of Valid		18	

Correlations between valuing of school and final achievement

In this second case, we find that there is a significant correlation between valuing of school and student final achievement. The analyses show that there is a statistically significant correlation between the valuing of schools and student final achievement [ch(185,2)=87.05, p= 0.000].

In the case of valuing of school, we have presented an identical situation of the distribution of scores of respective student groups. 11.9% have shown that they value schools low, and 88.1% showed high valuing. Also, 98.4 % of excellent students have shown high level of valuing, and only 1.6% of them showed low valuing. Students with average achievement showed approximately similar values, where 96% of them showed high level of valuing of school, and only 4% of the group showed low level of valuing. Regarding students who are low achievers, 68% of them showed low level of valuing, while only 32% of those in the group showed high level of valuing of the school.

From this overview of results, we may conclude that the majority of students who show high level of valuing, and who express attitudes that what they learn in school is relevant and useful for their lives, have achieved average or excellent achievement, while students who showed low valuing are also low achievers. In this regard, we may conclude that valuing of school plays an important role on final school achievement, indicating that an increase in valuing positively affects student achievement.

Table. 11. Correlations between valuing of school and final achievement

| | | Achi | | | | | C -Square | | | |
		Lo	Aver	Excellent	Tot			Val	d	Asymp.
Low	Cou	1	4	1	2		Pearson -Squ	87,0 [a]	2	,00
	Expected	3,	11,	7,	22,		Likelihood	59,9	2	,00
	% within	77,3	18,2	4,5	100,0		Lin -b -Lin	49,4	1	,00
	% within	68.0	4.0	1.6	11.9		N of Valid	18		
	Resid	14	-7,	-6,			Associ			
	Std.	8,	-2,	-2,						
High	Cou	8	9	6	16		Symmetric			
	Expected	22	87,	53,	163				Val	Approx.
	% within	4,9	58,3	36,8	100,0		Nominal by P		,68	,00
	% within	32,0	96,0	98,4	88,1		Cramer		,68	,00
	Resid	-14,	7,	6,			N of Valid		18	
	Std.	-3,								
	Cou	2	9	6	18					
	Expected	25	99,	61,	185					
	% within	13,5	53,5	33,0	100,0					
	% within	100,0	100,0	100,0	100,0					

Correlations between mastery orientation and final achievement

The analyses indicate that there a statistically significant correlation between mastery orientation and final student achievement [ch(185,2)=82.38, p= 0.000].

In the case of mastery orientation as well, excellent students showed that more than 98% of them are satisfied with what they learn and have clear ideas that they perceive as new knowledge and skills mastered as school. In this case too, the rate of average student achievers who have high level of mastery orientation is somewhat lower than those of excellent achievers. Low achieving students, in 68 % of cases showed a low level of mastery orientation. As with previous variables, mastery orientation plays an important role in final student achievement.

From the overview of these three dimensions, including self-efficacy, valuing of school and mastery orientation that pertain to adaptive cognitive dimensions, we conclude that they play a significant role on school achievement. This implies that a high level of adaptive cognitive dimensions contributes to higher student achievement and vice versa.

Table. 12. Correlations between mastery orientation and final achievement

		Achi					C -Square				
		Low	Avera	Excelllent	Tot				Val	d	Asymp.
Low	Cou	1	5	1	2		Pearson -Squa		82,3 a	2	,00
	Expected	3,	12,	7,	23,		Likelihood		57,7	2	,00
	% within	73,9	21,7	4,3	100,0		Line -b -Line		48,4	1	,00
	% within	68,0	5,1	1,6	12,4		N of Valid		18		
	Resid	13,	-7,	-6,			Associa				
	Std.	7,	-2,	-2,							
High	Cou	8	9	6	16		Sym tric				
	Expected	21,	86,	53,	162,					Val	Approx.
	% within	4,9	58,0	37,0	100,0		Nominal by	P		,66	,00
	% within	32,0	94,9	98,4	87,6			Cramer'		,66	,00
	Resid	-13,	73	6,			N of Valid			18	
	Std.	-3,	,	,							
	Cou	2	9	6	18						
	Expected	25,	99,	61,	185,						
	% within	13,5	53,5	33,0	100,0						
	% within	100,0	100,0	100,0	100,0						

Correlations of maladaptive behavioral dimensions with student achievement

Correlations between handicapping and achievement

Handicapping as a component of maladaptive behavioral dimensions defined as a tendency of students to find untrue justifications and to hide true reasons for failing exams is significantly correlated with final student achievement. Values [ch(185,2)=6.27, p= 0.043] show that this correlation may be interpreted as a statistically significant one.

From the table of distribution of students based on their levels of handicapping, we find that 59% showed low level of handicapping, while 41% of them showed high level of handicapping. From the levels of distribution on the basis of their school achievement, we find that those with high level of handicapping include students who are low school achievers, where 64% of them have showed high level of handicapping. Among the average and excellent student achievers, only 38% of them showed a high level of handicapping.

These results imply that student achievement depends on their level of willingness to handicap school related assignments. Low student achievers tend to manifest higher levels of handicapping and vice versa.

Table. 19. Correlations between handicapping and student achievement

		Achi			
		Lo	Aver	Excellent	Tot
Low	Cou	9	6	3	10
	Expected	14,	58,	35,	109
	% within	8,3	56,9	34,9	100,0
	% within	36,0	62,6	62,3	58,9
	Resid	-5,	3,	2,	
	Std.	-1,	,	,	
High	Cou	1	3	2	7
	Expected	10,	40,	25,	76,
	% within	21,1	48,7	30,3	100,0
	% within	64,0	37,4	37,7	41,1
	Resid	5,	-3,	-2,	
	Std.	1,	-,	-,	
	Cou	2	9	6	18
	Expected	25,	99,	61,	185
	% within	13,5	53,5	33,0	100,0
	% within	100,0	100,0	100,0	100,0

C -Square		Val	d	Asymp.
Pearson -Squ		6,2 [a]	2	,04
Likelihood		6,1	2	,04
Line-b-Line		3,1	1	,07
N of Valid Associa		18		

Symmetric			Val	Approx.
Nominal by	P		,18	,04
	Cramer'		,18	,04
N of Valid			18	

Correlation between disengagement and student achievement

Disengagement, defined as decrease of interest and low level of concern of students to engage in meeting school requirements, showed statistically significant correlation with student achievement at the end of school year. Values [ch(185,2)=32.82, p= 0.000] show an average level of this correlation.

Analysis of distribution shows that 85% of students show low level of disengagement, while 15% of them show high level of disengagement. Low student achievers showed higher levels of disengagement, where 52% of them stated that their level of commitment to meeting school requirements as well as their interest to school drops on day-to-day basis. Average and excellent student achievers did not show differences regarding disengagement. Only 7%-10% of average and excellent students showed high level of disengagement.

These correlation results of handicapping and disengagement as elements of maladaptive behavioral dimension with student achievement indicate that maladaptive behavioral dimensions are negatively correlated with student achievement. All students who

have high level of maladaptive behavioral dimensions show low achievement and vice versa.

Table. 20. Correlations between disengagement and student achievement

		Ach			
		▼	Aver	Excellen	To
Low	Co	1	8	5	15
	Expected	21	84	52	158
	% within	7.6	56.3	36.1	
	% within	48.0	89.9	93.4	85.4
	Resi	.9.	4.	4.	
	Std.	-2.		.	
High	Co	1	1	4	2
	Expected	3.	14	8.	27
	% within	48.1	37.0	14.8	100.
	% within	52.0	10.1	6.6	14.6
	Resi	9.	4.	-4.	
	Std.	4	-1	-1.	
	Co	2	9	6	18
	Expected	25	99	61	185
	% within	13.5	53.5	33.0	100.
	% within	100.	100.	100.	100.

C -Square		Val	d	Asymp
Pearso -Squ		32.8 [a]	2	.0
Likelihoo		24.8	2	.0
Lin -b-Lin		20.5	1	.0
N of		18		
Associ				

Symmetric		Val	Approx
Nominal bv	P	.4	.0
	Crame	.4	.0
N of		18	

Conclusions and recommendations

Our research findings demonstrate the relevance of motivation dimension on student achievement. Despite the fact that learning process itself is a complex phenomenon, which is subject to the influence of numerous various factors, the study showed that there are various motivation dimensions that affect final student achievement.

The model utilized in the study to determine the level of influence on student achievement only involves a limited number of variables, which affect final student achievement. A more comprehensive study, which would include other factors in multi-factor models, would certainly result with more accuracy the effect size of motivation dimensions on student achievement.

The obtained data may serve all those involved in the learning process to understand the relevance of motivation dimensions in order that their didactic-professional work is able to direct students' performance towards higher achievement.

Based on our research findings and conclusions drawn from the research methods utilized in the study, we may provide following recommendations:

Since adaptive cognitive and behavioral dimensions (adaptive cognitive dimensions: self-efficacy, valuing of school and mastery orientation) have positive effects on student achievement, they must be treated more seriously and encourage their development at schools.

In the work with students, it is important to reduce development of maladaptive behavioral dimensions (disengagement and handicapping).

In order to have a higher reliability in the obtained results, we recommend including a significantly larger sample than in the present study.

A longitudinal study that would examine motivations dimensions and measure school achievement in order to investigate cause-effect relationships.

References

Deci, L. Edward & Ryan, M. Richard. *Intrinsic motivation and self-determination in human behavior*. New York: Plenum.. 1985.

Fortier, S. Michelle & Vallerand, J. Rrobert & Guay, Frederic. *Academic motivation and school performance..* Contemporary Educational Psychology. 1995.

Harter, Susan & Connell, P. James. *A model of children's achievement and related selfperceptions of competence, control, and motivation orientation*. In J. Nicholls (Ed.). *The development of achievement motivation*. London: JAI Press. 1984.

Lumsden, S. Linda. *Student Motivation to Learn*. ERIC Clearinghouse on Educational, 1994.

Meece, L. Judith & Anderman, M. Eric, & Anderman, H. Lynley. *Classroom goal structure, student motivation, and academic achievement.* Annual Review of Psychology. 2006.

Schiefele, Ulrich & Krapp, Andreas & Winteler, Andrin. *Interest as a predictor of academic achievement: A meta-analysis of research. The role of interest in learning and development.* 1992.

Schunk, H. Dale & Pajares, Frank. *The development of academic self-efficacy. Development of achievement motivation,* San Diego, CA: Academic Press, 2002.

Skinner, A. Ellen & Wellborn, G. James & Connell, P. James. "What it takes to do well in school and whether I've got it: A process model of perceived control and children's engagement and achievement in school". Journal of Educational Psychology. 1990.

Wigfield, Allan. *Expectancy-value theory of achievement motivation: A developmental perspective.* Educational Psychology Revie. 1994.