

# THE IMPACT OF PUBLIC HIGH SCHOOL MANAGEMENT SYSTEM ON ACADEMIC ACHIEVEMENT

**Mzia Tsereteli, Khatuna Martskvishvili, Ia Aptarashvili**  
National Curriculum and Assessment Center, Tbilisi, Georgia  
E-mail: mtsereteli@ganatileba.org, martskvishvili@gmail.com,  
iaptarashvili@ganatileba.org

## Abstract

*The goal of present study is to investigate the impact of school culture on academic achievement level. Specifically, the influence of school management system on students' performance. The study represents the part of the National Assessment in Math. 234 public schools principals were administered with the questionnaire for school principals. The questionnaire consisted of several blocks: the new style of school management; evaluation of effectiveness of teachers' work; evaluation of effectiveness of various school boards; participation of teachers and students in professional trainings, conferences and scientific competitions; various events for students as well as for parents. Result showed that school management system predicts level of students' academic achievement. Specifically, among the best predictors are following variables: democratic strategies of class management, school board effectiveness, popular-scientific meetings, and teachers' democratic approach to students.*

**Key words:** *academic achievement, school culture, school management.*

## Introduction

Researchers (Dumay, 2009; Leithwood, Patten, & Jantzi, 2010) conducted for the last years on school affectivity reveal that there is a long list of factors that define school success. Marzano (2002) indicates that those factors are generally united under five categories, which are: guaranteed and viable curriculum, challenging goals and effective feedback, parent and community involvement, safe and orderly environment, staff collegiality and professionalism.

Each of these factors contributes differently to student's academic achievement, but removal of one of these factors may lead to lower quality of teaching and learning. Some factors are directly connected to student's academic achievement, while others have indirect influence. Good and Brophy (1986) say: "Many values of school affectivity have indirect connection with results". Researches show (NCAC 2007, 2008) this indirect connection doesn't mean that the character of school management has no influence on student's results. For example, it may seem that the fact how the school administration cares for teacher's professional development, doesn't have direct influence on student's academic achievement. But it goes without saying that teacher's professionalism straightly defines student's academic achievement.

Researches conducted already in 1970 revealed that one of the most important factors of school success are school administration aspects, such as: strong administrative leadership, an emphasis on basic skills acquisition, high expectations for Student achievement, a safe and orderly atmosphere conducive to learning, frequent monitoring of school progress (TPDC, 2003).

Marzano (2002) in his book “What works in schools?” broadly discusses the factors that determine effectiveness of school. Based on other quantitative and qualitative researches he demonstrates that one of the crucial factor for education quality is the school culture characteristics, specifically, school management system.

The goal of the study is to investigate the school culture factors (namely, school management style and characteristics), predicting student’s academic achievement. Specific predictions of the study are as follows:

- (1) There should be positive correlation between democratic style of school management and students’ academic achievement;
- (2) If there is correlation between evaluation of effectiveness of teachers’ work and students’ academic achievement then effective evolution methods should be positively correlated with academic achievement;
- (3) Effectiveness of various school boards should be positively correlated to high academic achievement;
- (4) High index of factors that hinder the teaching process and reasons for skipping a class and missing a school should be negatively correlated to students academic achievement;
- (5) Active school life (participation of teachers and students in training programs, frequent participation in conferences and scientific competitions, various events for students as well as for parents) should be positively correlated to high academic achievement;
- (6) The principals’ self-assessment should be positively correlated to high academic achievement.

The purpose of the research is identification of school management factors predicting students’ academic achievement and measuring their predictive value in this process.

## **Methodology of Research**

### *General Background of Research*

Since 2004 Georgian educational system is reforming, the reforming process implies developing new curriculum, modern textbooks and new system of assessment, as well as implementing modern management of school system (Nijaradze, Macklain, Boll, Gogichadze, Lodia, 2008). It is crucial to conduct researches and assessments regularly to evaluate effectiveness of the reform. For this reason, the centre is conducting periodic assessments and researches the purpose of which is determining the level of student’s achievement and identifying background variables that have an influence on academic achievement (NCAC, 2009; Tsereteli, 2008).

The aim of presented research is a part of national assessment in math conducted in June, 2010.

### *Sample of Research*

234 public school principals participated in the study. The present study is part of national assessment of 9<sup>th</sup> graders in math; accordingly, study general population was all 9<sup>th</sup> graders of Georgian public schools. The stratified and one step cluster sampling was used in the study, population was divided by strata, strata itself were divided by following criteria: region, settlement type and size of school. After the respondents were distributed in strata, the school selection was done using the principle of systemic random selection.

### *Instrument and Procedures*

The principals were administered with the questionnaire consisted of several blocks: (1) democratic style of school management; (2) evaluation of effectiveness of various school boards; (3) evaluation of effectiveness of teachers' work; (4) participation of teachers and students in professional training programs; (5) conferences and scientific competitions; (6) various events for students as well as for parents; (7) safety of school's physical, social and hygienic environment; (8) factors that hinder teaching process; (9) reasons for skipping a class and missing school; (10) The principals' self-assessment.

The study was conducted at National Curriculum and Assessment Center of Ministry of Education and Science of Georgia. The principals filled in the questionnaires after the National assessment in Math. The standard instruction and samples were provided at the beginning of the questionnaire.

As the current study is part of National Assessment, the subject test which was developed for 2010 Math National Assessment in Georgia was used to assess student's academic achievement level.

### *Data Analysis*

The results were analyzed using Statistical package for social science (SPSS.18). The main statistical criteria used for data analyzing were the following: descriptive statistics and standard multiple regressions, correlation.

### **Results of Research**

Standard multiple regression showed that factors related to democratic style of school management explain 8.3%-of variability ( $R^2_{ADJ}=0.08$ ,  $F(6,5538)=83.08$ ,  $p=0.000$ ). The following factors are predictors for students' achievement level: independent decision making ( $\beta = 0.21$ ,  $p=0.000$ ), parent participation in creating the school regulation rules and code of conduct ( $\beta = 0.121$ ,  $p=0.000$ ), students participation in creating the school regulation rules and code of conduct ( $\beta = 0.069$ ,  $p=0.000$ ), subject board chairs participation in creating the school regulation rules ( $\beta = 0.115$ ,  $p=0.000$ ), teachers participation in creating the school regulation rules ( $\beta = 0.115$ ,  $p=0.000$ )

Frequency distribution of factors related to democratic style of school management is provided in Table 1.

**Table 1. Frequency distribution of factors related to democratic style of school management.**

	Never		Rarely		Sometimes		Often		Always	
	N	%	N	%	N	%	N	%	N	%
Independent decision making	227	4	685	12.2	1195	21.3	2435	43.3	1077	19.2
Parent participation in creating the school regulation rules	36	0.6	1544	27.4	2122	37.7	1410	25	519	9.2
Students participation in creating the school regulation rules	15	0.3	661	11.9	2221	36.3	2099	37.7	769	13.8

Subject board chairs participation in creating the school regulation rules	202	3.6	448	8	1605	28.5	2078	36.9	1295	23.0
Teachers participation in creating the school regulation rules	15	0.3	107	1.9	1404	24.9	2696	47.9	1409	25.0

Standard multiple regression showed that factors related to evaluation of effectiveness of various school boards (Specifically, students union, school tutorial board, Math section) explains 5.9%-of variability ( $R^2_{ADJ}=0.059$ ,  $F(1,5576)=83.08$ ,  $p=0.000$ ) and is a predictor for students academic achievement ( $\beta=0.24$ ,  $p=0.000$ ).

Standard multiple regression showed that frequency of using various teachers' work effectiveness evaluation methods predict academic achievement (Table 2).

**Table 2. Predictive value of teacher evolution forms for academic achievement level.**

Factors	Evaluation of teacher work effectiveness					
	Beta	SE	R <sup>2</sup>	Adj. R <sup>2</sup>	df	F
Lesson observation questionnaires	0.057***	0.056	0.159	0.157	(10, 4594)	86.870
Teacher rating questionnaires	-0.049***	0.009				
Teacher self assessment forms	0.099***	0.010				
Attendance on open lessons	0.193***	0.009				
Unexpected attendance on lessons	-0.231***	0.010				
Students assessment	0.042 **	0.006				
Students academic achievement assessment	-0.228***	0.010				
Parents assessment	0.076***	0.011				
National Assessment results	-0.043***	0.009				
** $p < 0.01$ ; *** $p < 0.001$						

Factors related to training experience predict academic achievement. The factor combination explains 2.7% of variability ( $R^2=0.027$ ,  $F(2, 5502)=76.89$ ,  $p=0.000$ ). Participation in training programs ( $\beta = 0.10$ ,  $p=0.000$ ) and sharing the experience to colleagues ( $\beta = 0.16$ ,  $p=0.000$ ) have predictive value for academic achievement

Factors that hinder teaching process explain 14.5% of variability ( $R^2=0.14$ ,  $F(5,4786)=161.69$ ,  $p=0.000$ ). The following factors are predictors for students' achievement level: hinder factor that implies teacher adaptation problems, teachers low expectations towards student, low encouragement of students is a predictor for academic achievement level ( $\beta = -0.16$ ,  $p=0.000$ ), the factor that implies skipping class and missing school and parent's low help in learning process as a hinder factor for teaching process predicts academic achievement level ( $\beta = 0.029$ ,  $p=0.000$ ), bad relationship between student and teacher is a predictor for academic achievement level ( $\beta = -0.224$ ,  $p=0.000$ ).

Various events for students as well as for parents are correlated to academic achievement level. Combination of these factors explains 15.9% of variability ( $R^2=0.15$ ,  $F(9, 5153)=107.98$ ,  $p=0.000$ ). The following factors are predictors for students' achievement level: meetings to discuss popular scientific themes ( $\beta = 0.206$ ,  $p=0.000$ ), frequency of excursions, sightseeings

and campings ( $\beta=0.04$ ,  $p=0.006$ ), participation in school activities (e.g. development of school land for growing and gardening) ( $\beta = - 0.148$ ,  $p=0.000$ ), participation in concerts and school performances ( $\beta = 0.188$ ,  $p=0.000$ ), discussion of academic achievement \ and issues related to school disciplines with students ( $\beta=0.07$ ,  $p=0.000$ ), discussion the code of conduct with students ( $\beta =0.10$ ,  $p=0.000$ ), meeting with popular people ( $\beta =0.189$ ,  $p=.000$ ), cultural events outside the school ( $\beta =.0111$ ,  $p=0.000$ ), open lessons for parents ( $\beta =0.022$ ,  $p=0.000$ )

Teachers' meetings to discuss various issues is connected with academic achievement. Variables combination explains 19.8% of variability ( $R^2=0.19$ ,  $F(14,5324)=936.85$ ,  $p=0.000$ ) The following meeting topics are predictors for students' achievement level: The necessity of new teaching methodology ( $\beta = - 0.301$ ,  $p=0.000$ ), the necessity of raising qualification ( $\beta = 0.002$ ,  $p=0.000$ ), students disciplines ( $\beta = -0.038$ ,  $p=0.000$ ), teachers code of conduct ( $\beta = 0.110$ ,  $p=0.000$ ), school accreditation issues ( $\beta =0.004$ ,  $p=0.000$ ), democratic style of class management ( $\beta = 0.268$ ,  $p=.000$ ), teacher professional commitments ( $\beta = 0.219$ ,  $p=0.000$ ), students code of conduct ( $\beta = -0.347$ ,  $p=0.000$ ).

Standard multiple regression showed that principals characteristics is correlated with academic achievement (Table 3).

**Table 3. Predictive value of principals characteristics for academic achievement level.**

	Characteristics of principals					
	Beta	SE	R <sup>2</sup>	Adj. R <sup>2</sup>	df	F
Involvement in reform processes	-0.128 ***	0.073	0.19	19.7	(9,5118)	139.61
Adaptation to Changes	0.100 ***	0.013				
Communication skills	0.065 ***	0.012				
Enjoyment of being principal	0.378 ***	0.014				
Team working skills	0.164 ***	0.012				
Acquaintance with own goals	-0.059 ***	0.016				
High motivation	-0.090 ***	0.015				
*** $p < 0.001$						

School management strategies predict academic achievement level. Combination of these factors explain 20.1% of variability ( $R^2=0.20$ ,  $F(18,4217)=58.91$ ,  $p=0.000$ ) and the following factors predictive value: selection team members with high leadership skills and helping them to improve their qualification ( $\beta=0.195$ ,  $p=0.000$ ), developing the strategic plan and annual goals and tasks for school ( $\beta =-0.139$ ,  $p=0.000$ ), regular meetings with school pedagogical board to assess the annual results ( $\beta =0.083$ ,  $p=0.000$ ), encouraging students, raising their intrinsic motivation ( $\beta =-0.053$ ,  $p=0.006$ ), providing teachers with necessary information ( $\beta =0.069$ ,  $p=.001$ ), supervising and helping high risk group children ( $\beta =0.273$ ,  $p=0.000$ ), improvement of parents involvement in learning process ( $\beta =0.097$ ,  $p=0.000$ ), controlling teachers to provide parents information about children strong and weak sides ( $\beta =-0.078$ ,  $p=0.000$ ), ensuring the technical support for school ( $\beta =0.044$ ,  $p=0.000$ ).

## Discussion

The researches (Bruininks & Mayer 1979; Chen, Hwang, Yeh, Lin 2011; Kush 1996; Rohde & Thompson 2007;) show that academic achievement is determined by students cognitive abilities in specific subject, but besides these abilities there are lots of factors related to academic achievement and accordingly, to school success, there are many researches that support this finding (Edmonds, 1981; Levine & Lezotte 1990; Mortimore, Sammons, Stoll, Lewis, & Ecob 1988; Sammons 1999; Sammons, Hillman, & Mortimore 1995). The present study results show that democratic style of school management is predictor for academic achievement level. If we assume that democratic style creates quite democratic environment at school, where student can express their ideas freely, and together with parents and teachers participate in creating school culture, that means that they have motivation of learning.

According the results, effectiveness of various school boards is connected to academic achievement level too, because effective work done by student union, tutorial board or math section, assists students in learning process.

Frequency of using various teachers' work evaluation methods predict academic achievement, but using all of these methods is not positive predictor for achievement, for examples assessing teacher via rating questionnaires, unexpected attendance on lessons, evaluation via students academic achievement assessment, via National Assessment results. It's possible to interpret these results in contradictory direction when students' academic achievement is low, principal try to use various methods for teacher assessments and by this way deal with the low academic achievement level.

Participation in training programs and sharing the experience to colleagues, the active school life, teachers and students participation in training programs, conferences and scientific competitions, various events for students as well as for parents do predict academic achievement. students whose teachers are active, always trying to improve their qualification and share experience has high academic achievement, we can assume that such school culture and healthy environment do empower students for learning

The principals' self-assessment also predicts academic achievement because principal as a leader plays crucial role in teaching process.

## Conclusions

The study results revealed that school culture factors, specifically, school management style and characteristics, influencing on student's academic achievement. It's possible to infer that democratic style of school management, some of evolution methods of effectiveness of teachers' work, effectiveness of various school boards, active school life (participation of teachers and students in training programs, frequent participation in conferences and scientific competitions, various events for students as well as for parents), the principals self-assessment is positively correlated with students academic achievement, but high index of factors that hinder the teaching process and reasons for skipping a class and missing a school is negatively correlated to students academic achievement.

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*Advised by Makvala Kharshiladze, Georgian Academy of Sciences, D.Uznadze Tbilisi  
Institute of Psychology, Tbilisi, Georgia*

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<b>Mzia Tsereteli</b>	Doctor of Psychological Sciences (Habilitation), Head of National Assessment, Research and Analytical Department, D.Uznadze Street 52, 0102, Tbilisi, Georgia. E-mail: <a href="mailto:mtsereteli@ganatileba.org">mtsereteli@ganatileba.org</a> Website: <a href="http://ncac.ge">http://ncac.ge</a>
<b>Khatuna Martskvishvili</b>	PhD, Psychometrician, National Curriculum and Assessment Center, D.Uznadze Street 52, 0102, Tbilisi, Georgia. E-mail: <a href="mailto:martskvishvili@gmail.com">martskvishvili@gmail.com</a> Website: <a href="http://ncac.ge">http://ncac.ge</a>
<b>Ia Aptarashvili</b>	PhD, Psychometrician, National Curriculum and Assessment Center, D.Uznadze Street 52, 0102, Tbilisi, Georgia. E-mail: <a href="mailto:iaptarashvili@ganatileba.org">iaptarashvili@ganatileba.org</a> Website: <a href="http://ncac.ge">http://ncac.ge</a>