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A Multilevel Analysis of the Role of School Quality and Family Background on Students' Mathematics Achievement in the Middle East

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Abstract The purpose of the present study is investigating the correlation between school quality and family socioeconomic background and students' mathematics achievement in the Middle East. The countries in comparison are UAE, Syria, Qatar, Iran, Saudi Arabia, Oman, Lebanon, Jordan, and Bahrain. The study utilized data from IEA's Trends in International Mathematics and Science Study (TIMSS) of 2011. Analysis of the data used the hierarchical linear modeling (HLM) and the data was analyzed in two levels: student and school. Separate models were developed for each country. The final models for most of the countries suggest similar results. Comparison of explained variance in school and family levels revealed that school is a more important factor in explaining the variance of students' mathematics achievement in all countries, excluding Syria. In most of the studied countries, some variables, such as parents' education and family economic status, show a weaker correlation with academic achievement compared to school resources, educational climate, and the number of enrolments of school.

Keywords Family Socioeconomic Background, School Quality, Mathematics Achievement, Middle East, TIMSS

1. Introduction

The Middle East, as one of the most strategic regions of the world economy, has appropriate capacities in human and natural resources. An efficient education as a fundamental strategy can ensure a broad and stable development for the countries in this region [1]. During recent decades, increasing attention of scholars and policy makers of the region has been paid to improve the quality of education. Economic growth as well as oil revenues has led to the improvement of the education in the region to some extent [2]. Improvement of literacy, a rise in the number of school years, free education, and high rates of enrolment in primary schools, are some of the strengths of the educational systems in Middle Eastern countries [2, 3].

However, studies suggest that education indicators in this region are not close to international standards [4]. The quality of schools is still one of the significant challenges of education in the region. Poor school quality, crowded classes and inadequacy of educational materials, lack of qualified teachers, particularly in rural areas, inaccessibility of schools with favorable quality for all pupils, [2,3,4] and gender discrimination in access to education in some of the countries of the region [3] are some of the obstacles to achieve curriculum goals in the region. Failure to achieve the goals of curriculums in basic skills such as science, mathematics, and reading, regardless of the incurred expenses, is of concern because these skills play a fundamental role in the development of scientific insight and problem solving, reasoning, and critical thinking in pupils and they are the bases of many specialized skills in later grades [5], like students' values, professional skills/knowledge and attitudes necessary to enter scientific and technological workforce [6].

Concerns regarding pupils' basic skills in education require understanding the contexts and situations which influence their learning. Since social contexts are one of the factors which affect pupils' academic achievement, understanding them can be helpful in explaining the academic performance. Every student performs in the contexts affected by family, peer groups, school, race, country, etc., and these contexts influence their actions and attitudes [7]. Indeed, studying people in isolation from their environment and social space is impossible [8]. Environmental factors in social cognitive theory [9] have been considered as one of the main influential elements on individual behavior.. Environment as one of the aspects of Bandura's theory affect both cognition and behavior. Proper educational environment enhances individual academic achievement and his/her attitude toward education [10]. According to Bandura, although there is a reciprocal interaction between environment, behavior, and an individual, in any given moment each of these elements can be more influential than the other two. For instance, a very

loud voice in environment can be the main determinant of a person's action [9].

Limited physical space in classes, lack of educational facilities, and unfavorable climate of schools are some problems in most of the countries in the Middle East [3, 4], which can have damaging impacts on a pupil's academic achievement.

In such conditions, some families incur costs of private education to compensate the existing shortcomings in school's educational quality and prepare their children for university entrance exams [3]. Wealthy parents are able to provide more suitable learning environments for their children [11]. Superior economic conditions, having more books at home and access to computers and internet can bring about higher academic achievement for children in these families [12]. Educated parents have more opportunities for participation in and contribution to their children's academic affairs. However, students with poor socioeconomic status suffer not only from lack of funding for private education, but also from social inequalities such as speaking in a second language at home which can have a negative impact on their academic performance [13, 14].

Whether these are families that have sufficient power to influence academic performance and compensate inadequacy of schools or schools that are able to fill the gap between high and low levels of access to educational facilities, has remained a controversial issue in the literature. Some believe that schools in developing countries are a crucial source accounting for variations in academic performance. Schools with sufficient educational resources, favorable physical condition [15], and psychological space stimulate pupils' social and cognitive growth [12] and are able to bridge the gap between higher and lower class access to educational facilities.

This notion known in the literature as Heyneman and Loxley's effect (H-L effect) indicates the important role of school in developing countries. Heyneman and Loxley's findings led to a wave of studies comparing the roles of family background and school resources in academic performance. Some studies consistent with Heyneman and Loxley [16] report that school factors compared to student factors account for a great variance of academic achievement [17, 18, 19]; however, some other studies suggest that school factors have a negligible impact on academic achievement compared to family background and, therefore, don't have the sufficient efficacy to compensate social inequality [20, 21, 22].

Nowadays, with the increasing tendency of wealthy Middle Eastern families to apply for private education for their children, and with the countries in the region be willing to make larger investments for school quality improvement, it would be noteworthy to know the answer to this question that which one has a higher influence on a student's educational achievement, schools or family status. Quality assessment of schools and socioeconomic status of families will help to determine the efficiency of schools in fulfilling curricular objectives and bring into light whether schools are capable of bridging the education access gap between higher and lower social classes. The purpose of the present study is not to contrast the two factors of family and school, but is to investigate the social context influential on students' mathematics achievement in Middle Eastern countries.

Investigating social context associated with learning provides a better understanding of educational issues toward improving students' achievement in the Middle East. Accordingly, the present study is concerned with the relationship between school quality, family socioeconomic background, and pupils' mathematics achievement in the Middle East.

2. Materials and Methods

The present study is a descriptive correlational study which applies a multilevel regression analysis to investigate the effect of different level variables on mathematics achievement.

1-Population, Sample, and Sampling Method

The present study utilized, the mathematics performance of 8th grade students of UAE, Syria, Qatar, Iran, Saudi Arabia, Oman, Lebanon, Jordan and Bahrain. Becase of there is not a wide access to proper information regarding basic characteristics of educational systems in the Middle East and few studies have been conducted on the problems of these educational systems [3], The results of these standardized tests are one of the best indicators of school quality and academic achievements [21]. In this study, the data of IEA has been used to investigate school characteristics, family socioeconomic status, and academic achievement. TIMSS employs a two-stage clustered sampling method in which a random sample of schools is chosen in each participating country at the first stage, and one or two classes are randomly selected from each target school at the second stage. In this sampling design, the proportion of each sample cluster is determined according to its contribution in the population, and considering the sampling weights of class, school, pupil, total weight, and final weight, it is assured that statistic indices obtained from the sample are representative of target population [23].

2- Procedures for data analysis

Due to the hierarchical structure of the data in this study, hierarchical linear modeling (HLM) or multilevel analysis was applied. Data was analyzed in two levels of student (first level: individuals; within-school) and school (second level: group; between-school). Variable selection of the study was based on existing literature regarding associated factors with mathematics achievement. All the variables are grand-mean centered. First level variables (student) in the present study are: number of books at home, age of the students, gender, parents' education, household possessions, parents' involvement in school activities, and use of computer at home as predictor variables and students' mathematics

achievement as outcome variable.

Second level variables (school) include: School climate, overall school resources, school facilities for mathematics teaching, instructional time in a school day, and the total number of students enrolled in school. Appendix 1 shows the applied changes in TIMSS data in order to obtain the final parameters.

There are four main weights in TIMSS and PIRLS studies which are employed depending on the type and purpose of the research. Due to the application of multilevel modeling, among the weights of TIMSS in the present study, total weight of student was assigned at student level; however, school weight was not assigned at school level, based on the assumption that level 1 student weight is inversely proportional to the probability of a student being selected, given that the school is selected [24].

The mean of 5 plausible values of the TIMSS was considered as an indicator of mathematics achievement. TIMSS assessment plausible values are academic achievement scores which are created based on item response theory and represent a sample of scores that the student might have obtained had he completed the full test, given the measurement error associated with the test [25]. In order to prevent the possible problems associated with missing data, the estimation of mean series was used in the present study.

In order to construct the model, the unconditional model was used to investigate the variance of mathematics achievement in school level in the first step [26]. Intraclass correlation coefficient indicated that the application of hierarchical analysis is useful for all the studied countries. A step by step strategy was applied to build up the level-1 and level-2 models. First of all, each of the level-1 variables were entered unconditional model separately; afterwards, only those variables which could significantly (α=0.05) predict mathematics achievement entered the complete model simultaneously. A similar procedure was employed for level-2 variables. It is noteworthy that according to the prediction power of variables, final models were different for each country.

3. Results

The results of model 1 analysis include the relationship between a student's family background variables and mathematics achievement as presented in table 1.

As the results indicate, in Saudi Arabia, Oman and Bahrain students whose first language were an official one, showed higher achievement compared to those with other dialects; however, in Oman, students who speak an unofficial language at home presented superior performance. No significant correlation was observed between language and mathematics performance in Syria, Lebanon, Qatar and Iran. Parents' involvement had a positive significant effect on mathematics performance in all the studied countries excluding Saudi Arabia. In none of the countries, but Syria, mother's educational attainment correlated with mathematics achievement. Moreover, father's educational attainment could predict mathematics achievement only in two countries of Jordan and Qatar. Number of books at home had a significant positive correlation with the output variable in all the countries.

In the entire studied countries student age could predict mathematics achievement. Negative coefficient estimate indicates that younger students have had higher mathematics achievement. In Oman and Jordan girls had significantly higher achievement than boys; unlike Lebanon, where boys had superior mathematics achievement. Gender has not been a significant predictor of our criterion variable. Consistent with other studies [17, 18, 19], more possessing a house, as an indicator of family's economic status, significantly improved mathematics achievement in Iran, Jordan, Oman, Lebanon and Syria. On the contrary, in the UAE, students form low economic background showed higher mathematics achievement. In all the studied countries, excluding Syria, access to computer had significant positive correlation with mathematics achievement. Explained variance of mathematics achievement reveals that socioeconomic background has maximum prediction power in Oman (15.51 percentage) and minimum prediction power in Syria (2.64).

The results of model 2 analysis include the relationship between school quality variables and mathematics achievement as presented in table 2.

As indicated by Table 2, total school resources including class, building, air conditioning systems, and the budget for purchasing equipment and materials were significant predictors of mathematics achievement in Bahrain, Iran and Qatar. Instructional materials for mathematics teaching such as expert teachers, calculators, computers and mathematics software did not significantly predict mathematics achievement in any of the countries. According to Table 2, school climate was a significant predictor for mathematics achievement in the studied countries excluding Syria and Qatar.

While in Iran students from schools with more instructional hours showed better mathematics achievement, in Saudi Arabia students from schools with less instructional time showed higher achievement. Instructional time was not a significant predictor for mathematics achievement in other countries. Students from Iran, Oman, Qatar, UAE and Lebanon had greater achievement in schools with high rates of enrolment. Explained variance of level-2 indicates that school variables had respectively the highest and lowest prediction power in Bahrain and Syria.

Table 1. Student's family background variables as predictor of mathematics achievement

		Spoken Language of the Test	Parents' involvement	Mother's education	Father's education	Number of books at home	Age	Sex	house possession	Computer in home	σ^2	%explained variance [1]
Bahrain	Coefficient	-4.43	6.77	0.05	0.68	10.6	-25.18			10.98		
	SD	1.4	57.1	0.6	0.61	1.27	1.77	–	–	1.75	4970.08	10.73
	T	-3.15**	4.31***	0.08	1.11	8.35***	-14.16***			6.26***		
Iran	Coefficient	-2.17	17.8			7.4	-17.77		10.7	2.94		
	SD	1.19	1.27	–	–	0.94	1.59	-	2.09	0.94	3791.85	11.23
	T	-1.81	13.91***			7.80***	-11.13***		5.10***	3.12**		
Jordan	Coefficient	-5.44	-3.82	0.19	1.92	9.45	-13.18	-16.24	5.19	3.69		
	SD	1.81	1.58	0.68	0.58	1.13	2.62	5.92	1.97	1.36	5648.28	7.85
	T	-2.99**	2.41**	0.29	3.31***	8.32***	-5.01***	-2.74**	2.63**	2.71**		
Oman	Coefficient	-4.85	3.76			12.99	-33.55	-31.72	9.42	8.09		
	SD	1.22	1.31	–	–	0.95	1.45	6.72	1.91	1.1	5944.39	14.2
	T	-3.97***	2.87**			13.61***	-22.99***	-4.71***	4.92***	7.32***		
Qatar	Coefficient		7.92	0.17	2.12	10.73	-18.33		-3.6	5.21		
	SD	–	1.5	0.76	0.67	1.16	1.89	–	2.3	2.45	5273.92	7.17
	T		5.25***	0.23	3.16**	9.19***	-9.67***		1.56	2.12*		
UAE	Coefficient	2.09	4.02		0.58	10.33	-14.1	-0.27	-15.91	11.03		
	SD	0.86	0.89	–	0.33	0.65	0.96	3.22	1.46	0.9	3561.71	12.24
	T	2.41*	4.47***		1.74*	15.86***	-14.65***	-0.08*	-10.83***	12.14***		
Lebanon	Coefficient		6.23			4.83	-12.13	9.86	7.98	2.72		
	SD	–	1.6	–	–	0.94	1.11	2.61	2.32	1.23	2249.81	12.74
	T		3.92***			5.09***	-10.89***	3.77***	3.43***	2.20*		
Saudi Arabia	Coefficient	5.68				6.82	-11.81			2.77		
	SD	1.29	–	–	–	1.08	1.72	–	–	1.24	4487.36	6.1
	T	-4.38				6.3	-6.86			2.22*		
Syria	Coefficient		6.11	-1.91	-0.96	5.7	-6.79		4.05			
	SD	–	1.56	0.56	0.56	1.31	1.18	–	2.03	–	5073.97	2.64
	T		3.9***	-3.36***	-1.71	4.32***	-5.75***		1.99*			

$p< 0.05$* $p< 0.01$** $p< 0.001$***

[1] $\frac{\sigma^2 \text{null model} - \sigma^2 \text{ level1model}}{\sigma^2 \text{null model}}$

Table 2. School quality variables as predictor of mathematics achievement

		school resources	Resources for Teaching math	School climate	instructional hours	Total Enrolment	τ	%Explained variance [1]
Bahrain	Coefficient SD T	17.75 6.64 2.67**	–	42.57 11.98 3.55***	–	0.007 0.004 1.57	2505.72	36.79
Iran	Coefficient SD T	12.85 4.87 2.63**	–	24.42 6.72 3.63***	11.41 4.84 2.35*	0.14 0.02 6.83***	2895.16	27.43
Jordan	Coefficient SD T	–	–	34.26 6.73 5.08***	–	–	2595.25	15.34
Oman	Coefficient SD T	–	–	34.44 5.48 6.27***	–	0.026 0.003 6.94***	2699.16	18.94
Qatar	Coefficient SD T	29.18 12.4 2.35*	-0.14 12.81 -0.01	–	–	0.012 0.002 5.43***	5046.54	18.95
UAE	Coefficient SD T	5.16 3.38 1.52	7.47 4.05 1.84	17.99 4.2 4.28***	–	0.01 0.002 4.68***	2368.93	20.38
Lebanon	Coefficient SD T	–	–	22.43 6.46 3.46***	9.12 5.03 1.81	0.03 0.005 6.77***	1560.18	32.86
Saudi Arabia	Coefficient SD T	–	-	30.58 9.47 3.22**	-14.98 6.38 -2.34*	0.01 0.02 0.78	2906.44	14.93
Syria	Coefficient SD T	–	–	–	–	–	–	–

$p< 0.05$* $p< 0.01$** $p< 0.001$***

[1] $\frac{\tau_{00}\text{null model}-\tau_{00}\ \text{level2model}}{\tau_{00}\text{null model}}$

4. Discussions

The present study is mainly concerned with the effect of school quality and family's socioeconomic background on students' mathematics achievement in the Middle East. To investigate the correlation between mathematics achievement, family's socioeconomic background, and school quality, the study utilized data from IEA's Trends in International Mathematics and Science Study (TIMSS) of 2011.Investigating the correlation of level-1 variables and mathematics achievement revealed that student's bilingualism and his/her speaking in a second language at home negatively affect their academic achievement in Saudi Arabia, Oman, Bahrain and Jordan. This result is consistent with other studies [13, 14] and suggests that reading and writing in a different language than mother tongue (language spoken at home) can damage student's academic achievement because it causes some difficulties in comprehension. Children in some of the Middle Eastern countries have two different languages or dialects. Clearly, solving mathematics and science problems would seem difficult and challenging before that student can read the texts and questions skillfully. On the other hand, when education is provided in a different language than the one spoken at home, and school language is not similar to child's surrounding language, school learning would not be sufficiently repeated and reinforced outside the educational environment. Unlike other countries, students from UAE, with a different language from the test, had a better performance. This higher achievement can suggest high achievement motivation of immigrants in this country.

According to the results, parental involvement had a positive significant effect on mathematics achievement. Higher parental involvement, their participation with school, and obtaining information about their children's academic performance encourage students to believe that their education and academic achievement are important to their parents. These parents have greater control over the education of their children which, in turn, can improve academic performance.

On the contrary to [13], the findings of the present study indicate the lack of correlation between parent's education and students' academic achievement in the Middle East. According to the results of this study, mother's educational attainment had no significant correlation with mathematics achievement in none of the studied countries, excluding Syria. Furthermore, Jordan and Qatar were the only countries where father's educational attainment could predict mathematics achievement. In other words, children of families with various social statuses could have relatively similar academic performance in mathematics. This represents a lessening impact of social differences on mathematics performance. However, economic factors have shown a strong association with mathematics achievement. Investigating the relationship between possessing a house, as an indicator of family's economic status, and mathematics performance revealed that the number of books and access to computer at home have a positive significant correlation with the output variable in almost all of the studied countries. Moreover, in Iran, Jordan, Oman, Lebanon and Syria other household possessions (desk, dictionary, etc) have significantly improved mathematics achievement. Affluent parents can provide better facilities or supplementary private education for their children, leading to their higher academic achievement. Lebanon has the highest rate of private education in the region followed by Jordan, Qatar and UAE that are at the beginning stages of privatization of education [4]. Private education, as a means of strengthening the education received from the school, is common in Iran. Access to good educational facilities and receiving private education can cause a gap between the access of students in the upper and lower economic classes to good education.

In the UAE, schools have greatly compensated the economic and social inequalities, so that students with lower socioeconomic levels have achieved favorable educational function. Furthermore, some studies suggest that although students of low income families suffer from so many social inequalities, these families and their children have some desirable characteristics. For instance, these families are looking for more effective teachers and better opportunities for their children [10] which could be the reason for higher achievement of students with poor economic status in the UAE.

Findings suggest that parental involvement in the UAE is a main predictor of academic achievement, which indicates the fact that active parent participation in low socioeconomic classes has been a successful attempt to improve academic achievement of children.

Consistent with Salehi, Belhaj Hassine & Assaad [3] gender equality has been a key factor associating with academic achievement in the region. This indicates that in most parts of the region, cultural obstacles such as believing in higher need of boys to learn mathematics in order to earn money, have not been an impediment to equal academic achievement between men and women. Girls have obtained even higher achievements compared to boys. Lebanon is the only country where boys have represented superior achievement in mathematics. Gender equality in academic achievement can be considered as a point of strength in education of the region.

Results from analyzing level-2 model reveal that general school resources (including class space, building, air conditioning systems, and the budget for purchasing equipments and materials were predictors of mathematics achievement in Iran, Bahrain and Qatar. These findings reveal the need for investment in school resources in order to improve mathematics achievement in these countries.

Instructional resources for teaching did not significantly improve mathematics achievement. This shows that class size, suitability of school temperature and condition, buildings, and textbooks are more important factors for learning mathematics than resources like computer software and calculators.

According to the results and consistent with [12], school

climate was a significant predictor for mathematics achievement in all the countries excluding Syria and Qatar. The composite model suggests that in five countries, school climate was the most important predictor of mathematics performance in both school and student level. School climate as the psychological climate of school which facilitates students' cognitive and social development is a more essential factor than any other physical conditions, instructional resources, and school features for aiding teaching and learning processes at school.

In Iran, students from schools with more instructional hours had higher achievement in mathematics. It may be due the fact that special schools, which usually select their students based on academic achievement tests and their prior educational performance, have more instructional hours than regular schools, leading to improvement in students' mathematics achievement.

Students from schools with high rate of enrolment have performed better than those from other schools in Iran, Oman, Qatar, UAE and Lebanon. Social conditions of the area where the school is located affect students' academic performance. Usually, schools in rural areas and small towns with less population have lower enrolments. Students in these areas don't have the same economic and educational opportunities as those in big cities; a factor which can impact on their academic performance.

The present model does not have the sufficient efficiency to explain the variance of mathematics achievement in Syria. Actually, none of the school level variables had significant correlation with mathematics performance and family socioeconomic variable, only accounting for 2.46 percent of this variance. Unlike other countries, families played a more crucial role in students' mathematics achievement in Syria. In this country, family's economic status and parental involvement in school activities were more important factors in explaining mathematics achievement. Considering the high rates of impoverished and rural populations in Syria and its smaller share of GPD rate, as compared to other countries of the region [4], it can be concluded that there are high rates of inequalities in this country making it difficult for rural and underprivileged families to get educated. Moreover, school quality could not compensate the inequality in accessing to instructional materials and opportunities for disadvantaged children.

5. Conclusions

The present study was conducted to investigate the correlation between school quality and family background and students' academic performance in the Middle East. Despite some differences, Middle Eastern countries have many common cultural, economic, and historical backgrounds which provides the opportunity to compare their instructional issues. In this study, school quality and family background variables were selected based on the variables used in the literature. Separate models were developed for each of the countries. Final models revealed similar results for all the countries excluding Syria. Comparing the explained variance of school and student levels indicates that in all the countries, excluding Syria, school level factors were more important in explaining the variance of students' mathematics achievement in the region. In most of the studied countries parents' education and family's economic status had weaker correlation with mathematic performance, compared to school resources, instructional climate, and number of enrolment. Nonetheless, these findings do not deny the importance of family context in academic performance. According to Heyneman [27], in those subjects with school as one of many sources of information and knowledge, socioeconomic status is a more powerful predictor of academic achievement; however, in that subject with school curriculum as the primary source of theoretical information, school quality seems to be a more powerful predictor.

Nevertheless, this finding can represent the significance of investment in schools as a strategy to improve quality of education in the Middle East. There are sufficient financial resources for investment in school improvement, since most of these countries have large oil revenues. Allocating more resources to the education sector and investment in school quality can provide greater educational achievements for countries of the region.

Appendix 1

School level	School climate	1- teachers' Job satisfaction 2 - the teachers' understanding of school goals 3. success of the Committee of curriculum implementation of the school 4. teachers ' expectation for students ' academic achievement 5- academic support of student by his/her parents 6-participation of parents in school activities 7-a sense of responsibility of students concerning school properties 8-the enthusiasm of students regarding academic success	Original values 1- very high 2- high 3-medium 4- low 5- very low Changed values 1→5 2→4 3→3 4→2 5→1	The final value is sum of the changed values considered at three levels: 1- low ≥8 -16 2-medium 16-24 3-high 24-32 4- very high 32-40
	General School Resources	How much is your school's capacity to provide instruction affected by a shortage or inadequacy of the following? 1- Instructional materials (e.g., textbooks) 2- School buildings and grounds 3- air conditioning and lighting systems 4- Instructional space (e.g., classrooms 5- Computers for instruction	Original values 1- Not at all 2- A little 3- Some 4- A lot Changed values 1→ 4 2→ 3 3→ 2 4→1	The final value is sum of the changed values considered at three levels: 1- low ≥5 -10 2-medium 10-15 3-haigh 15-20
	Resources for Mathematics Instruction	How much is your school's capacity to provide instruction affected by a shortage or inadequacy of the following? 1- Teachers with a specialization in mathematics 2- Computer software for mathematics instruction 3- Library materials relevant to mathematics instruction 4- Audio-visual resources for mathematics instruction 5- Calculators for mathematics instruction 6- software for mathematics instruction	Original values 1- Not at all 2- A little 3- Some 4- A lot Changed values 1→ 4 2→ 3 3→ 2 4→1	The final value is sum of the changed values considered at three levels: 1- low ≥6 -12 2-medium 12-18 3-haigh 18-24
	Time	Instructional time in one day of school		
	Total number of students enrolled in school			

Student level	Language	How often do you speak language of the test at home?	1-Always 2- often 3- sometime 4- never	
	Number of book	How many books are there at your home?	1.1-10 , 2. 10—25 , 3.26-100 , 4.101-200, 5. More than 500	
	Age of student			
	sex of student			
	highest level of education completed by mother and father	1-did not go to school or elementary, 2- Middle School, 3- high school 4- pre university or short time specialized course , 5- Associate 6- Bachelor's degree 7- higher		
	Home possessions	Computer. Study desk. Books of your very own. Internet connection. and 6 country-specific indicator of wealth>	Original values 1-yes 2- no Changed values 1→ 2 2→ 1	The final value is sum of the changed values considered at three levels: 1- low ≥11 -14.6 2-medium 14.6-18.2 3-haigh 18.2-22
	Role of parents in their children's education	ask me what I am learning in school .I talk about my schoolwork to my parents .My parents make sure that I set aside time for my homework .My parents check if I do my homework	Original values: 1-Every day 2- Once or twice a week 3-once or twice a month 4-Never or almost never Changed values : 4→ 1 1→4 2→3 3→ 2	The final value is mean of the changed values
	computer at home	How often do you use computer at home?	1- Every day almost every day 2- once or twice a week 3- once or twice a month 4- never or almost never	Changed values 4→ 1 1→4 2→3 3→ 2

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