Comparative Istanbul example regarding attitudes of the students preparing for university exam towards mathematics and computer

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ABSTRACT

The purpose of this study is to determine mathematics and computer attitudes of the students preparing for university exam. In this sense, the questionnaire was performed on a total of 250 people. Cronbach's alpha analysis was applied for the reliability of the questions prepared, and the reliability coefficient was found 0.920. Factor analysis, regression test, chi-square, t test and one-way Anova tests were utilized in the analysis of data obtained In summary, it has been concluded that the success average of the participants for math lesson is high and their daily internet use is 4 hours and above. The students have stated that the technology increases their success in their lessons but they waste their time with internet use instead of using their time to prepare university exam. The parents of the students have put forward their negative concerns about the use of technology due to the worries for the exam.

Key words: Mathematics, Computer, Attitude, Computer Technologies
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INTRODUCTION

Mathematics is a field of science that is learnt via studying, an enjoyable thing after learning which improves thinking and helps us to build connections between events. Student Selection Examination is very important for students. The results students get from Student Selection Examination considerably affect their futures [1]. Mathematics is one of the most important lessons in this exam. Mathematics lies behind many lessons. It plays an important role in students' choice of profession and their exam success. So such an important lesson should be given in accordance with the modern methods and techniques and current technologies must be followed. In this century which is called information age, rapid developments in information and communication extended the use of computers in mathematics teaching.

Students-at the end of the education-are expected to gain problem solving skills in order to catch up with the increasing knowledge and to internalize it in a rapidly changing and developing world. Such skills have special place in mathematics teaching. In this process, technology offers new opportunities [2]. Due to the development of computer technologies, the names of computer and mathematics have started to be spelled together frequently. Tooke (2001) [3] has put forth that mathematics satisfies computer science but both of them develop by differentiating [4]. It is known that the attitude towards the lesson plays a significant role in student's success. Therefore, attitudes must be determined and the required precautions should be taken. It is thought that determining the factors which may pose negative attitudes towards mathematics and removing them may increase students' success in mathematics [1].

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Particularly in recent years, a lot of studies have been conducted regarding the relation between the attitude towards mathematics and success in mathematics. Most of these studies indicate that the attitudes of students towards mathematics affect their success in mathematics [5].

Accordingly, developing a positive attitude towards mathematics becomes crucial. Actually developing a positive attitude towards mathematics is one of the most important purposes of mathematics teaching [6].

The concern for mathematics, fear and negative attitudes result in refraining from it and thought of failure. In this sense, the attitudes of students towards mathematics are of high importance. The attitudes of students towards mathematics lesson are important for math lesson to reach the desired level and quality. In our country, there are many studies conducted examining the attitudes of students towards mathematics and touching upon the importance of attitudes [7-14]. The main purpose of the study is to make a comparative analysis of the attitudes of students who are preparing for the university exam towards mathematics lesson and computer. Being aware of the students' attitudes towards mathematics lesson and computer is important in terms of associating mathematics and computer technologies with education and teaching mathematics more easily and effectively after the required amendments.

Computer-aided mathematics teaching
Mathematics means counting, calculating, measuring and drawing used for solving the problems in daily life. Mathematics is a logical system which develops reasonable thinking [15]. Mathematics is in all fields of life with universal values in addition to pushing people towards thinking and comprehending the events. Many definitions were made in literature about mathematics. Mathematics: it is a science studying numbers and structure of quantities, their characteristics and relations between them via science and classified under such areas as arithmetic, algebra, astronautics [16, 17]. According to Stafslien (2001) [18], mathematics is seen by people as a medium opening the door for a life of high quality and a good career [19].

Mathematics is one of the compulsory lessons starting from the first years of school like in old times and students have to learn it. Mathematics is also one of the fields students have to learn at school which is regarded as difficulty by them. The attitudes of students towards mathematics are very important in mathematics teaching [6]. In our country, many students have concerns regarding math is difficult and they won't be successful, and so they develop negative attitudes towards mathematics. This condition starts at primary education and continues increasingly [20].

Developments in technology, information and communication have resulted in changes in teaching manner. The use of new techniques and methods in today's teaching has gained importance. In this current "Information Age", information and communication technologies (computers, multimedia, internet etc.) have gained their place in education system [21].

As a result of this rapid development, use of computer technologies in solving the problems of education system has become indispensable. In today's societies, people meet with computers at early ages and intensively use them at home and school for many things [22]. The couple of computer and internet being technological wonders that entered into our lives has become an addiction among the young people [23]. In the future, many professions will require a solid basis in the field of mathematics, science and computer. All of them necessitate mathematics-based information and skills [24].

The effects and use of technology are not only widespread in all phases of human life, but also in education [25]. Increasingly complex structure of teaching, increase in information, the need for quality and modern education require use of computers in education as a tool. The use of technology in education will enable not only an education in line with the modern world's necessities, but also gaining the purpose-oriented highest efficiency from education [26].

Computers having an important place among the information technologies are one of the main cultural elements of our century and their use has become widespread. Computer-aided education means the practices about use of computers as learning-teaching tool in directly presenting lesson contents, reviewing learned things with other methods, problem solving and doing some exercise and in other similar actions [4, 27].

Today, use of technology is in all fields and that's why using technology in mathematics teaching will ensure a positive attitude in students towards mathematics. So the efficiency and quality of education system will increase. The developments in technology enable many tools that can be used in education and teaching processes. The most important one of those tools used in today's education activities seems to be computers [28]. It is thought that the potential of computer that materializes abstract mathematical relations will help students to gain significant mathematical learning experiences [29, 30].

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With the use of computers in mathematics, students will be ensured to learn in shorter time and more easily. Students will be able to understand mathematical concepts and comprehend how they will use them in problem solving. Therefore, computers will play the role of a tool which improves creative thinking in the field of mathematics. The majority of the studies conducted point out that computer-aided education increases students' success [4].

The use of technology in mathematics education is also becoming widespread. It can be uttered that it comes first among the education fields adopted and used by educational technologies most quickly. As national and international institutions or agencies in the field of mathematics education encourage the use of technology. Many researches and projects are also being carried out regarding the technology and its use in mathematics learning-teaching processes. In mathematics teaching program issued by MEB in our country [31], effective use of technology exists among the principles of teaching under the title of "mathematics teaching and learning". In this program, the importance and benefits of use of calculators and computers in mathematics learning process are indicated [25].

In a study about computer-aided education, Arıkan et all (2006) [32] have pointed out that students learning via computer are more successful than the ones learning with traditional method and their learning is more permanent.

Pugalee (2001) [33] has stated in his study that computers are effective tools in solving math problems and encouraging reasoning and exploring.

According to Peker (1985) [34], increasing success, developing positive attitude towards mathematics, increasing interest, and reducing concerns and fears towards mathematics are among the benefits of using new technologies in mathematics education. It is also indicated that it is important in terms of developing such effective thinking habits as analytical and critical thinking [21].

The effect of computers in education is observed in mathematics field more than in any other fields [35]. Computers are gaining an important place in the changing and advancing mathematics education [36, 37]. It is a fact that mathematics education and computers being the essential part of information technologies will play a significant role in students' planning their future. Student attitude which has been demonstrated to have an effect on student success is a key factor in this sense.

Accordingly, analysis of the attitudes of students who are preparing for university exam towards mathematics and computer will be useful in determining the factors affecting students' success in mathematics and the reasons of negative attitudes towards the lesson.

MATERIALS AND METHODS

Purpose, scope and method
The main purpose of the study is to determine the attitudes of students who are preparing for the university exam towards mathematics and computer, and to ascertain the differences of the success in the lesson according to use of special math program, internet use, sex, age and the department to be studied. A questionnaire was applied to a total of 250 people in the research which was conducted in İstanbul and the results were obtained from the questions measuring the demographic characteristics, their success in math lesson and their technology use. Cronbach's alpha analysis was performed for the reliability of the questions prepared and reliability coefficient value was found 0.920.

Analysis of data
Data obtained following the questionnaire were analyzed in PASW 18.0 package program. Descriptive statistics, reliability analysis, factor analysis, independent sample t-test, variance analysis, chi-square and regression analyses were used within the analysis.

RESULTS

Regarding the demographic characteristics of the participant students; it has been concluded that both sexes are equal as 50%-50%. 54% is 18 years old, 25% is 20 years old, 14.23% is 22 years old and 7% is aged 23 and over. 89% is single, 10% is married and in other category. 72% has 1 sibling, 16% has 2 siblings, 9% has 3 siblings, 2% has 4 siblings and 1% has 5 siblings. 40% of the participant students want to receive medical education, 9% wants economics education, 3% wants veterinary education, 6% wants pharmaceutical education, 8% wants to study in educational sciences, 2% wants to study in law, 33% wants to receive engineering education. Regarding the incomes, 58% earns 501-1000 Turkish lira, 23% earns 1001-1500 lira, 11% earns 1501-2000 lira, 6% earns 2001-

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2500 lira and 2% earns over 2500 lira. Concerning the sector in which their parents work, it has been determined that 39% works in public sector, 41% works in private sector, 12% is worker, 4% is retired and 4% is in other sectors. While 71% doesn't have a health problem, 29% suffers from a health problem.

Table 1: Demographic characteristics of the participants

Variables		Frequency	%
Sex	Male	124	49.4%
	Female	126	49.6%
Your age	18	136	54%
	20	63	25%
	22	34	14%
	23+	17	7%
Marital Status	Single	223	89%
	Married	21	8%
	Other	6	2%
How many siblings do you have	1	179	72%
	2	41	16%
	3	23	9%
	4	5	2%
	5	2	1%
In which department would you like to study in the future	Medicine	100	40%
	Economics and administrative sciences	22	9%
	Veterinary	8	3%
	Pharmacy	15	6%
	Education	19	8%
	Law and social sciences	4	2%
	Engineering	82	33%
How much is your or your family's income	501-1000	146	58%
	1001-1500	58	23%
	1501-2000	28	11%
	2001-2500	14	6%
	2501 and more	4	2%
In which sector do your parents work	Public sector	98	39%
	Private sector	102	41%
	Worker	30	12%
	Retired	10	4%
	Other	10	4%
Do you have any health problems	Yes	73	29%
	No	177	71%

Regarding the highest marks the participants have taken from mathematics lessons, 4% took between 20-30, 2% took between 31-40, 3% took between 41-50, 15% took between 51-60, 21% took between 61-70, 17% took between 71-80, 13% took between 81-90 and 24% took between 91-100. When the daily average internet and computer use is analyzed, 18.2% uses for 1 hour, 14% uses for 2 hours, 23% uses for 3 hours, 20% uses for 4 hours, 21% uses for 5 hours and 4% uses for 6 hours and more. The rate of the ones using a special program for mathematics lessons is 83%. The rate of the ones using internet with their laptops is 62%.

• The rate of individuals who are warned and restricted by the parents because of internet use is 17%

• The rate of individuals having the opinion that the questions asked are useful to know them and to test their success is 87%

• The rate of individuals saying that the questions they answer reflect their personality and thoughts is 83%

• The rate of individuals believing to pass the university exam thanks to the education they receive is 82%

• The rate of individuals saying that computer and internet use positively affect their success in mathematics and other lessons is 84%

• The rate of individuals saying that they should be restricted because of internet use is 87%

• The rate of individuals thinking that internet use wastes their time during which they should prepare for university exam instead is 84%

• The rate of individuals believing that use of technology will bring advantage in the future is 92%

• The rate of individuals believing that computer and internet use have positive effect on mathematics perception or lessons is 91%

• The rate of individuals believing that computer or internet use improves fast and strategic thinking skillis 91%

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Table 2: Statistics about the school

Items		F	%
What is your grade point average of math lesson over (100) so far?	20-30	10	4%
	31-40	6	2%
	41-50	8	3%
	51-60	37	15%
	61-70	52	21%
	71-80	43	17%
	81-90	33	13%
	91-100	61	24%
How many hours do you spend on internet and computer a day?	1 hours	46	18%
	2 hours	34	14%
	3 hours	58	23%
	4 hours	49	20%
	5 hours	53	21%
	6 hours and more	10	4%
Do you use a special program on computer or computers for mathematics lesson?	Yes	207	83%
	No	43	17%
Which of the below technology devices do you usually use to connect internet?	Desktop computers	33	13%
	Telephone	46	18%
	Laptops	155	62%
	PC Tablet	16	6%
Have you ever been warned and restricted by your family (parent) because of games, chats and other matters on computer and internet?	Yes	43	17%
	No	207	83%
Do you believe that the scaled and close-ended questions above help us to know you and to test your success for the university exam accurately?	Yes	218	87%
	No	32	13%
Do all the questions you answer reflect your personality and thoughts?	Yes	207	83%
	No	43	17%
Do you believe that you will be successful in the university exam thanks to the education you received until now?	Yes	206	82%
	No	44	18%
Have computer and internet use ever negatively affected your success in mathematics or other lessons?	Yes	40	16%
	No	210	84%
Dou you think you should be restricted regarding internet use?	Yes	218	87%
	No	32	13%
Is internet use necessary in the period you prepare for university exam, or does it mean wasting time?	Yes it means wasting time	210	84%
	No it is necessary	40	16%
Do you agree that if you follow conveniences and innovations brought by technology, it will contribute a lot to your future more?	Yes	229	92%
	No	21	8%
Do you believe that do the games you are involved and follow on internet and computer have a positive effect on your attitude towards mathematics?	Yes	227	91%
	No	23	9%
Games I play on internet and computer help me think faster and act strategically.	Yes	228	91%
	No	22	9%

Table 3: Attitudes of parent regarding the internet use of child

Items		F	%
I have negative concerns about internet use of my child concerning the exam.	Yes	221	88%
	No	29	12%
I don't believe that internet use will make any contribution to my child's interest for mathematics lesson.	Yes	222	89%
	No	28	11%
Your education?	High school	26	10%
	University	191	76%
	Master or PhD	33	13%
I have problems with my child due to the fact that I restrict her/him to use internet.	Yes	211	84%
	No	39	16%
I think my child has fallen into bad habits in terms of personality and ethical way because of using internet.	Yes	48	19%
	No	202	81%
I am of the opinion that it will be useful if my child gets psychological support from experts or other people because of her/his addiction to internet.	Yes	211	84%
	No	39	16%
Children and parents should agree and act together regarding internet use. Therefore, it will be easier to guide the child about internet use.	Yes	235	94%
	No	15	6%
Studying performance of my child reduces because of using internet.	Yes	219	88%
	No	31	12%
I observe that the attitude and perception of my child towards the lesson is higher when s/he doesn't use internet. This condition increases the success in mathematics more.	Yes	221	88%
	No	29	12%

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The opinions of parents regarding computer and internet use of their children are as follows.
• I have negative concerns about internet use of my child concerning the exam– 88% Yes
• I don't believe that internet use will make any contribution to my child's interest for mathematics lesson – 89% Yes
• Your education – 10% High school, 76% University, 13% Master or PhD
• I have problems with my child due to the fact that I restrict her/him to use internet– 84% Yes
• I think my child has fallen into bad habits in terms of personality and ethical way because of using internet – 81% No
• I am of the opinion that it will be useful if my child gets psychological support from experts or other people because of her/his addiction to internet– 84% Yes
• Children and parents should agree and act together regarding internet use. Therefore, it will be easier to guide the child about internet use – 94% Yes
• Studying performance of my child reduces because of using internet – 88% Yes
• I observe that the attitude and perception of my child towards the lesson is higher when she/he doesn't use internet. This condition increases the success in mathematics more – 88% Yes

Table 4: Chi-square test for program using and success in lesson

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	,262[a]	1	,609		
Continuity Correction[b]	,080	1	,777		
Likelihood Ratio	,254	1	,614		
Fisher's Exact Test				,648	,377
Linear-by-Linear Association	,261	1	,609		
N of Valid Cases	250				

Chi-Square test regarding the tendency to use a special program in mathematics lessons and tendencies for lesson success:
H0: Tendency to use special mathematics in computer didn't affect success in mathematics in a positive way.

As Asymp. Sig.value is 0.609 > 0.05, H0 hypothesis can't be rejected. Tendency to use mathematics in computer doesn't affect the success in mathematics in a positive way.

Table 5: Chi-square test for internet use and success in lesson

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	16,378[a]	1	,000		
Continuity Correction[b]	14,529	1	,000		
Likelihood Ratio	13,600	1	,000		
Fisher's Exact Test				,000	,000
Linear-by-Linear Association	16,312	1	,000		
N of Valid Cases	250				

Chi-square test for success in mathematics lesson and internet use:
H0: Restricting internet use and success in mathematics lesson are independent.
As asymp. Sig. value is 0.107>0.05, internet use and success in mathematics lesson are not independent.

Table 6: KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		,877
Bartlett's Test of Sphericity	Approx. Chi-Square	12896,754
	Df	2211
	Sig.	,000

Factor analysis for the items of mathematics lesson
A factor analysis was applied to the items of mathematics lesson and the results are indicated below with table and charts.

KMO adequacy and Bartlett'stest:
Concerning the test results of KMO adequacy; as 0.877 result was above 0.6 threshold value, the sample was found to be adequate to do a factor analysis. Bartlett's test results point out that at least one variance is different due to the fact that we reject the hypothesis of equality of all variances, which is the main hypothesis.

Table 7: Rotated component matrix

	Component				
	1	2	3	4	5
I am not successful in any of my lessons as I use internet and computer.	,696				
I cringe when I enter into mathematics lesson.	,663				
I do all kinds of mathematics homework perfectly and thoroughly.	,619				
I believe that I am more talented than other people about mathematics.	,604				
I find myself quite skillful concerning the use of internet.	,600				
I don't believe the mathematics lessons given as based on computer technologies are sufficient and comprehensible.	,598				
I believe I should study harder for mathematics in order to pass the exam.	,588				
I don't think I will be successful in exams and particularly in mathematics lesson because of computer games and internet.	,566				
Internet and computer is my must.	,551				
I spend most of my time on things I do on the internet.	,543				
I consider myself more successful and talented in mathematics than my classmates.	-,531				
My parents "my mother and father" points out that they don't feel comfortable about my internet use.	,531				
Internet and computer are always more important than my lessons.	,529				
I like to solve difficult math problems.	-,516				
I believe that mathematic lessons or education given on computer and internet is unnecessary.	,480				
I surf on all kinds of websites because this makes me so happy and energetic.	,476				
I love playing games on internet and computer.	,470				
Computer games push me to act more strategically.	,467				
I was never scared more than anything but mathematics.	,447				
I don't think I will be successful in mathematics at all.	,442				
I believe my performance for mathematics questions will be good.	,431				
I don't know why but I am addicted to computer and internet.	,415				
I don't think that only the mathematics education in class and course is not enough.	,406				
I believe that using computer technologies and internet in mathematics education will be more useful.	,396				
I am afraid of failing in university exams because of mathematics.		,715			
I don't like talking about mathematics with others.		,684			
I don't think I can live without internet and computer.		,652			
Complex and meaningless things come to my mind when it comes to mathematics.		,613			
I always begin to worry when I feel that I will be asked questions in mathematics lessons.		,609			
I use technological systems in mathematics.		,606			
When I encounter an extraordinary problem while studying mathematics, I don't give up until I solve it.		-,577			
I must improve myself about mathematics in order to be successful in the exam.		,557			
I spend most of my day on improving myself by taking mathematics education on internet and computer.		,535			
Internet is indispensable and the most important material in my life.		,500			
I think the use of internet and social networks must be prohibited to us at times of exams.		,498			
I am sure I understand what is told in mathematics lessons.		-,492			
I can't find time for my lessons because of the time I spend on internet and computer.		,478			
I always use technology because this is my philosophy of life.		,470			
I feel I become mentally depressed in case of a talk or sharing about mathematics.		,460			
I always use internet.		,437			
Internet is an indispensable part of my life.		,431			
I wouldn't be interested in mathematics at all if it was not obligatory or I had to.		,429			
I spend most of my time out of the lessons on internet.		,422			
I believe it is necessary for me to receive psychological support about mathematics.		,412			
I believe math questions should be excluded from the exam.		,409			
I believe teaching mathematics in schools and courses by using computer technologies will be more efficient.			,628		
Going to the blackboard in math lessons is always difficult for me.			,624		
I know I should be talented and good at mathematics in my whole life-time.			,584		
Computer-aided games are more useful on my knowledge and intelligence development.			,499		
Computers and internet create and addiction on me and other users.			,476		
Mathematics lesson is always fun for me.			,419		
Dealing with the not-solved problems after math lessons always makes me pleased.			,418		
I believe my personality has been spoilt and my success has decreased because of social networks.			-,394		
I don't know how to study mathematics.				,647	
I don't want to take math lesson in my future education life.				,592	
I think mathematics is a necessary lesson which should be learnt and be in every part of life.				,491	
I never restrict myself about internet use.				,477	
I review mathematics education I receive from school and course on internet and computer because this reinforces face-to-face education.				,380	
I prefer computer games to studying mathematics. As this makes me happier.					,778
I believe time spent on computer and internet is a waste of time.					-,641
I prefer playing games and surfing on social networks to using computer and internet for mathematics.					,617
I don't think mathematics lessons I receive at school and course are sufficient for me to get more information about mathematics and using computer systems.					,330

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Establishing the components of factor analysis:
1st Factor: I should study mathematics more and use internet less
It is seen that students are very successful and talented in using internet and computer; however, problems occur regarding the success in mathematics. The students can overcome this problem by studying more and using internet less.

2nd Factor: I won't be able to be successful in mathematics
I feel stressful and terrible when I hear something about mathematics. Even though I am trying to solve this problem by looking on the internet, I can't be successful somehow. This makes me depressed and I begin to worry about failing in university exam.

3rd Factor: Mathematics lessons are important and I believe that I will be more successful with the help of technology
I need the strategic perspective provided by mathematics in order to be successful in every field of life. And I believe I can achieve this with technology.

4th Factor: I have problems regarding studying mathematics
Although I believe in the importance of mathematics, I can't be successful as I don't know how to study.

5th Factor: I prefer using internet to studying mathematics.
Computer games and surfing on the net make me happier than studying mathematics.

Table 8: T-test about sex

Items	Sig. (2-tailed)
I should use internet less and study mathematics more.	,000
I won't be able to be successful in mathematics.	,030
Math lessons are important and I believe I can be more successful with the use of technology.	,025
I have problems in studying mathematics.	,008
I prefer using internet to studying mathematics.	,002

Factors of success in mathematics by sex:
H0: Sex doesn't cause a significant differentiation on factors of success in mathematics.

Regarding the factors by sex, it has been concluded that as sig values of all items are below 0.05 threshold value, h0 hypothesis should be rejected. Sex causes a significant differentiation on factors of success in mathematics.

Table 9: Anova test about age

Items	F	Sig.
I should use internet less and study mathematics more.	2,866	,035
I won't be able to be successful in mathematics.	3,876	,000
Math lessons are important and I believe I can be more successful with the use of technology.	2,654	,049
I have problems in studying mathematics.	2,840	,039
I prefer using internet to studying mathematics.	4,230	,000

Factors of success in mathematics by age:
H0: Age doesn't cause a significant differentiation on factors of success in mathematics.
Regarding the factors by age, it has been concluded that as sig values of all items are below 0.05 threshold value, h0 hypothesis should be rejected. Age causes a significant differentiation on factors of success in mathematics.

Table 10: Anova test about the department to be studied

	F	Sig.
I should use internet less and study mathematics more.	4,510	,000
I won't be able to be successful in mathematics.	7,023	,000
Math lessons are important and I believe I can be more successful with the use of technology.	1,604	,147
I have problems in studying mathematics.	2,458	,025
I prefer using internet to studying mathematics.	1,699	,122

Factors of success in mathematics by the department to be studied:
H0: Department to be studied doesn't cause a significant differentiation on factors of success in mathematics.
Regarding the factors by department to be studied, it has been concluded that as sig values of 3 items are below 0.05 threshold value, h0 hypothesis should be rejected. Department to be studied causes a significant differentiation on

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factors of "I should use internet less and study mathematics more", "I won't be able to be successful in mathematics" and "I have problems in studying mathematics".

Table 11: Regression analysis of grade point average in mathematics

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,724	,106		54,180	,000
	I should use internet less and study mathematics more.	,610	,106	,325	5,759	,000
	I won't be able to be successful in mathematics.	,380	,106	,203	3,594	,000
	Math lessons are important and I believe I can be more successful with the use of technology.	,059	,106	,031	,557	,578
	I have problems in studying mathematics.	-,326	,106	-,174	-3,078	,002
	I prefer using internet to studying mathematics.	-,397	,106	-,212	-3,749	,000

Regression between grade point average in mathematics and factors:
Below results have been obtained following the regression analysis of point grade average in mathematics and factors.

• One unit of increase in the item I should use internet less and study mathematics more reflects on the success in mathematics as 0.610 unit of increase.

• One unit of increase in the item I won't be able to be successful in mathematics reflects on the success in mathematics as 0.380 unit of increase.

• One unit of increase in the item Math lessons are important and I believe I can be more successful with the use of technology reflects on the success in mathematics as 0.059 unit of increase.

• One unit of increase in the item I have problems in studying mathematics reflects on the success in mathematics as 0.326 unit of decrease.

• One unit of increase in the item I prefer using internet to studying mathematics reflects on the success in mathematics as 0.397 unit of decrease.

Table 12: Regression analysis of daily computer use

	Parameter	Estimate	Std. Error	Z	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
PROBITa	I should use internet less and study mathematics more.	-,260	,157	-1,654	,098	-,568	,048
	I won't be able to be successful in mathematics.	,025	,126	,201	,841	-,222	,272
	Math lessons are important and I believe I can be more successful with the use of technology.	,243	,150	1,625	,104	-,050	,536
	I have problems in studying mathematics.	,114	,130	,879	,380	-,140	,369
	I prefer using internet to studying mathematics.	-,256	,133	-1,919	,055	-,518	,005
	Intercept	1,480	,126	11,781	,000	1,354	1,606

Regression between daily use of computer and internet and the factors:
Below results have been obtained following the regression analysis of daily use of computer and internet and factors.

• One unit of increase in the item I should use internet less and study mathematics more reflects on daily computer use as 0.260 unit of decrease.

• One unit of increase in the item I won't be able to be successful in mathematics reflects on daily computer use as 0.025 unit of increase.

• One unit of increase in the item Math lessons are important and I believe I can be more successful with the use of technology reflects on daily computer use as 0.243 unit of increase.

• One unit of increase in the item I have problems in studying mathematics reflects on daily computer use as 0.114 unit of increase.

• One unit of increase in the item I prefer using internet to studying mathematics reflects on daily computer use as 0.256 unit of decrease.

Table 13: Chi-square test for the department to be studied in the future

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	52,594[a]	6	,000
Likelihood Ratio	38,410	6	,000
Linear-by-Linear Association	,097	1	,756
N of Valid Cases	250		

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The relation between the item I have negative concerns about internet use of my child concerning the exam and the department to be studied in the future:
H0: Items are independent.
According to the analysis made, due to the fact that asymp. Sig. value is below 0.05 threshold value, H0 is rejected. So there is a relation between the item I have negative concerns about internet use of my child and the department to be studied in the future.

Table 14: Chi-square test for grade point average in mathematics

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	41,166[a]	7	,000
Likelihood Ratio	46,250	7	,000
Linear-by-Linear Association	2,494	1	,114
N of Valid Cases	250		

The relation between the item I have negative concerns about internet use of my child concerning the exam and grade point average in mathematics:
H0: Items are independent.
According to the analysis made, due to the fact that asymp. Sig. value is below 0.05 threshold value, H0 is rejected. So there is a relation between the item I have negative concerns about internet use of my child and grade point average in mathematics.

Table 15: Chi-square test for the department to be studied in the future

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	27,393[a]	6	,000
Likelihood Ratio	28,894	6	,000
Linear-by-Linear Association	21,260	1	,000
N of Valid Cases	250		

The relation between the item I don't believe that internet use will make any contribution to my child's interest for mathematics lesson and the department to be studied in the future:
H0: Items are independent.
According to the analysis made, due to the fact that asymp. Sig. value is below 0.05 threshold value, H0 is rejected. So there is a relation between the item I don't believe that internet use will make any contribution to my child's interest for mathematics and the department to be studied in the future.

Table 16: Chi-square test for grade point average in mathematics

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	59,045[a]	7	,000
Likelihood Ratio	57,499	7	,000
Linear-by-Linear Association	26,043	1	,000
N of Valid Cases	250		

The relation between the item I don't believe that internet use will make any contribution to my child's interest for mathematics lesson and grade point average in mathematics:
H0: Items are independent.
According to the analysis made, due to the fact that asymp. Sig. value is below 0.05 threshold value, H0 is rejected. So there is a relation between the item I don't believe that internet use will make any contribution to my child's interest for mathematics and grade point average in mathematics.

CONCLUSION

The distribution of participants by sex is equal. The participants are mainly aged 18 in terms of the distribution by age. As the participants are still students, their marital status is mostly single. Being the only child in the family is really high among them. Medicine and engineering are predominant in terms of the departments to be studied in the future. More than half of the participants live with an income between 501 lira and 1000 lira. Their parents mostly work in private sector and most of them do not have a health problem.

In terms of success average in mathematics, the rate of grades near to 100 is considerably high. Daily internet use is 4 hours and more. Most of the participant students use a software for mathematics lesson.

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Among the participants, the rate of believing that they can enter the university with the education they receive is really high. Use of technology affects their success in lesson. They think they use internet too much and they want to be restricted. Likewise, internet use causes them to waste their time in the period when they prepare for the university exam.

Regarding the opinions of parents about their children and their success in mathematics lesson; parents have negative concerns about technology use due to the concern for the exam. They limit the internet use of their children and so they have problems with them. They also believe that their children have become addicted to internet use and they are more successful in their lessons when they don't use internet.

Regarding the analysis results, using a special program for mathematics lessons doesn't increase their success for the lesson. Also internet use was found to be directly related to the success in mathematics.

In analyses that were carried out after taking the opinions of parents, the concerns of parents for exam because of the internet use of their children have been found to be related to the department to be studied and grade point average in mathematics. The opinion that internet use doesn't make any contribution to my child's success in mathematics was found to be related to the department to be studied and grade point average in mathematics.

The opinions directed to the participant students regarding success in mathematics and their use of technology were perceived in 5 dimension in total. These dimensions are; the participants state that they should use internet less and study more, they won't be able to be successful in mathematics, mathematics is an important lesson and technology will contribute more, they have problems in studying mathematics and they prefer using internet to studying mathematics.

Following the demographic analysis made after the factor analysis, it has been determined that the criteria of sex and age have an effect on factor items. For the department to be studied, it has been indicated that they should use internet less and study mathematics more, and they should increase their success in mathematics.

The results of regression analysis made concerning the success in mathematics indicate that studying mathematics more increases the success in mathematics and internet use decreases the success in mathematics.

According to the regression models regarding the time of using computer and internet, if studying mathematics increases, computer use decreases and when the inclination for technology increases, so does internet use.

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